

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.01.96  
Test oil : ISO 4113  
Combination No. : 0 402 846 067  
Injection pump  
Pump designation : PE6P120A320RS8015  
EP type number : 0 412 826 016  
Governor  
Governor design. : RQV300...1050PA1225  
Governor no. : 0 421 814 151  
Cust. part No. : 11031773  
: -P02 v.11/95

## Customer-spec. information

Customer : VME  
Motor : TD122KAE  
Power kW : 243.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : -40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 078  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 11.00  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 9.30  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 325

Rack travel in mm : 3.80

Tolerance mm : +- 0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1095  
guide sleeve  
travel mm : 7.90  
Tolerance mm : +- 0.25

Rated speed rpm : 325  
guide sleeve  
travel mm : 2.09  
Tolerance mm : +- 0.25

Rated speed rpm : 1028  
guide sleeve  
travel mm : 6.85  
Tolerance mm : +- 0.25

Rated speed rpm : 387  
guide sleeve  
travel mm : 2.96  
Tolerance mm : +- 0.25

Rated speed rpm : 437  
guide sleeve  
travel mm : 3.59

Tolerance mm : +- 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm : +- 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1190

Rack travel in mm : 9.50  
Tolerance mm : +- 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 236.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree : +- 4.0

control lever  
position degree : 125.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 8.30  
Rated speed rpm : 1105  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1165

Tolerance 1/min : +- 15  
rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1250

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#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

control lever  
position degree : 10.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 5.40

#### Testing:

Rated speed rpm : 325  
rack travel mm : 3.80  
Tolerance mm : +- 0.30

Rated speed rpm : 375

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#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 9.30  
Tolerance mm : +- 0.05

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#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 9.30  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.80  
Tolerance mm : +- 0.10

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 520  
rack travel mm : 1.30  
Tolerance mm : +- 0.20

Pressure hPa : 290  
rack travel mm : 0.25  
Tolerance mm : +- 0.05

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : +- 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 19.0

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#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 3.80  
Tolerance mm : +- 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.11.96  
Test oil : ISO 4113  
Combination No. : 9 407 083 282  
Injection pump  
Pump designation : PES6A90D320RS2605  
EP type number : 9 400 083 078  
Governor  
Governor design. : RSV325...1400A2B2096  
: R  
Governor no. : 9 420 083 168  
Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : TD 229-6  
Power KW : 95.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 922 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 8.05  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5

Tolerance  
cm3/1000 strokes : +- 0.5

Check tolerance  
cm3/1000S. : +- 2.5

#### Spreed

Tolerance  
cm3/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 6.50

Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 11.5

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.0

#### Spreed

Tolerance  
cm3/1000 strokes : 4.5

Check tolerance  
cm3/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 65.5  
Tolerance  
cm3/1000 strokes : +- 0.5  
Check tolerance  
cm3/1000S. : +- 2.5

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Spreed  
Tolerance  
cm3/1000 strokes : 3.0  
Check tolerance  
cm3/1000S. : 7.0

#### CONTROL LEVER

control lever  
position degree : 56.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 7.00  
Rated speed rpm : 1445  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1480  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1650

#### LOW IDLE

control lever  
position degree : 23.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 6.00  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 325  
rack travel mm : 6.50  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 650  
Tolerance 1/min : +- 30

#### TORQUE CONTROL

Rated speed rpm : 1400

rack travel mm : 3.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 8.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 8.55  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 1200  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.10

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#### FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

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#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

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End of test specification sheet

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.04.94  
Test oil : ISO 4113

Combination No. : 0 402 796 201

Injection pump  
Pump designation : PES6H120/720/3LS1001  
EP type number : 0 412 726 201

Governor  
Governor design. : RE33  
Governor no. : 0 421 890 354

Cust. part No. :

Customer-spec. information  
Customer : MAIN  
Motor : D2866LF14

### TEST BENCH REQUIREMENTS

Inlet line : 4.1 EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

### REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

### BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, U<sub>act</sub> = 2.5 V

### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min<sup>-1</sup>: 0

Setting point  
(P, R and H pump)

U<sub>act</sub> V : 3.100  
CRT mm : 13.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Check value  
(P, R and H pump)

U<sub>act</sub> V : 1.700  
CRT mm : 6.15

Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE--SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

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(C) INJECTION PUMP WITH POSITIONER

TEST POINT V1

Rated speed rpm : 750

Uact V : 3.350  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 332.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

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Rated speed rpm : 1000  
Uact V : 3.290  
Prestroke solenoid  
Stroke mm : 8.00  
Del. quantity  
cm3/1000 strokes : 309.0  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0

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Rated speed rpm : 500  
Uact V : 2.900  
Prestroke solenoid  
Stroke mm : 9.20  
Del. quantity  
cm3/1000 strokes : 304.0  
Check tolerance  
cm3/1000S. : +/- 6.0

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Rated speed rpm : 500  
Uact V : 2.100  
Prestroke solenoid  
Stroke mm : 6.20  
Del. quantity  
cm3/1000 strokes : 168.0  
Check tolerance  
cm3/1000S. : +/- 6.0

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Rated speed rpm : 750  
Uact V : 1.450  
Prestroke solenoid  
Stroke mm : 10.00  
Del. quantity  
cm3/1000 strokes : 65.0  
Check tolerance  
cm3/1000S. : +/- 6.0

TEST POINT L1

Rated speed rpm : 300  
Uact V : 1.520  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.060  
Prestroke solenoid  
Stroke mm : 7.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 2.450  
Prestroke solenoid  
Stroke mm : 7.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.01.97  
Test oil : ISO 4113  
Combination No. : 0 402 648 932  
Injection pump  
Pump designation : PE8P120A320LS7849  
EP type number : 0 412 628 864  
Governor  
Governor design. : RQV300...1050PA1034  
Governor no. : 0 421 813 993

Cust. part No. :

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9308 TI  
Power KW : 360.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 8- 7- 2- 6  
                  : - 3- 5- 4  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 15.05  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 780  
guide sleeve  
travel mm : 6.60  
Tolerance mm : ± 0.30

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.90  
Tolerance mm : ± 0.20

Rated speed rpm : 405  
guide sleeve  
travel mm : 2.65  
Tolerance mm : ± 0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 4.40  
Tolerance mm : ± 0.20

Rated speed rpm : 1118  
guide sleeve  
travel mm : 10.50  
Tolerance mm : ± 0.10

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 14.00  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 14.00  
Rated speed rpm : 1105  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1215  
Tolerance 1/min : ± 15

rack travel mm : 0.70  
Tolerance mm : ± 0.70  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 250



CRT mm min. : > 8.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 385

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.05  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 700  
Pressure hPa : 1500  
rack travel mm : 15.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
Pressure hPa : -  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 700

Pressure hPa : 870  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1130  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.01.97  
Test oil : ISO 4113

Combination No. : E 040 086 800

Injection pump  
Pump designation : PES4A100D320/3RS35..  
EP type number : 0 041 083 700

Governor  
Governor design. : RSV400...1100AOC....  
Governor no. : 0 042 088 200

Cust. part No. : TATA-CUMMINS

Customer-spec. information  
Motor : 4BT-90 PS/2200  
Power KW : 66.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.10  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 6.60  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.50  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 93.3
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.5
<hr/>	

Rated speed rpm	: 400
<hr/>	
Rack travel in mm	: 999.00
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 10.7
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension	
click setting x	: 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
-----------------	--------

Aneroid pressure hPa	: 1000
Del. quantity cm <sup>3</sup> /1000 strokes	: 93.3
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

#### CONTROL LEVER

control lever position degree	: 106.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 11.50
Rated speed rpm	: 1145
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1250
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1260
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever position degree	: 86.0
tolerance degree	: ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 999.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
-------------	-----------

Testing:

Rated speed rpm : 400  
rack travel mm : 999.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 999  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 999.00  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 750  
Pressure hPa : 1000

Rated speed rpm : 750  
Pressure hPa : -  
rack travel mm : 999.00  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 750  
Pressure hPa : 650  
rack travel mm : 999.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 450  
rack travel mm : 999.00  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 101.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 999.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 10.7  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.07.96  
Test oil : ISO 4113  
Combination No. : 0 402 996 306  
Injection pump  
Pump designation : PES6P120A72ORS8512  
: -1  
EP type number : 0 412 926 209  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 023

Cust. part No. : 313 GC 5217 P3

Customer-spec. information  
Customer : MACK  
Motor : E7

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 084  
Inlet press. bar : 3.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.00  
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 900  
Uact V : 3.050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +/- 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 14.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625  
Uact V : 3.260  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 392.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +/- 12.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 16.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 18.0

### TEST POINT L1

Rated speed rpm : 325  
Uact V : 1.310  
Tolerance Volt : +/- 0.060  
Check tolerance  
Volt : +/- 0.070  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 33.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 19.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 22.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 40.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 50.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.03.97  
Test oil : ISO 4113

Combination No. : 0 400 074 886

Injection pump  
Pump designation : PES4M55C320RS167  
EP type number : 0 410 054 960

Governor  
Governor design. : RSF400/2000M55-7  
Governor no. : 0 420 021 268

Cust. part No. :

Customer-spec. information  
Customer : DPICO  
Motor : OM601-2.3l (Dom)  
Power kW : 58.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1 638 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 2.05  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 21.00  
Tolerance mm : +- 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 15.50  
Tolerance : +- 0.20  
Check  
tolerance °NW : +- 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 1.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 6.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.25  
Tolerance mm :  $\pm$  0.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

##### RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2250  
rack travel mm : 7.70  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 2550  
rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

A22

CRT mm max. : 1.45

##### LOW IDLE

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  2.0

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500  
rack travel mm : 3.50  
Tolerance mm :  $\pm$  0.10

##### Load pick-up

Rated speed rpm : 250  
rack travel mm : 12.20

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.10  
Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1800  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 2000  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

##### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 1800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.8  
Spreed

Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 2000  
Spreed  
Del. quantity  
cm3/1000 strokes : 41.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : -  
Rated speed rpm : 2250  
rack travel mm : 7.70  
Tolerance mm : +- 0.25  
Del. quantity  
cm3/1000 strokes : 25.5  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.60  
Tolerance mm : +- 1.50  
Del. quantity  
cm3/1000 strokes : 59.0  
Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

---

#### LOW IDLE

Rated speed rpm : 400  
rack travel mm : 5.10  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 7.8  
Check tolerance  
cm3/1000S. : +- 2.3  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

---

control lever  
position degree : > 47.00

control lever  
position degree : < 44.50

---

#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever  
position degree : 14.0  
tolerance degree : +- 2.0

Rated speed rpm : 425

Rack travel in mm : 8.80  
Tolerance mm : +- 0.80  
Del. quantity  
cm3/1000 strokes : 23.0  
Tolerance  
cm3/1000 strokes : +- 3.5  
Check tolerance  
cm3/1000S. : +- 4.5  
Vacuum hPa : 400.0

---

#### TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 400  
Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.03.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 075 923  
  
Injection pump  
Pump designation : PES5M55C320RS168  
EP type number : 0 410 055 978  
  
Governor  
Governor design. : RSF385/2000M55-8  
Governor no. : 0 420 021 269

Cust. part No. :

Customer-spec. information  
Customer : DPICO  
Motor : OM602-2.9L (Dom)  
Power KW : 69.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

\*NW after s.o.d. : 15.50  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 38.5

Tolerance  
cm3/1000 strokes : ± 0.5

Check tolerance  
cm3/1000s. : ± 1.5

Speed  
Tolerance  
cm3/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Rated speed rpm : 385

Rack travel in mm : 5.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

IDLE STAGE

Rack travel in mm : 6.25  
Tolerance mm : ± 0.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2250  
rack travel mm : 7.70  
Tolerance mm : ± 0.25

Rated speed rpm : 2550  
rack travel mm : 0.50  
Tolerance mm : ± 0.50

SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
CRT mm max. : 1.45

LOW IDLE

control lever  
position degree : 14.0  
tolerance degree : ± 2.0

Setting point w/out bumper spring  
Rated speed rpm : 385  
rack travel mm : 5.60

SET IDLE AUXILIARY SPRING

Rated speed rpm : 500  
rack travel mm : 3.80  
Tolerance mm : ± 0.10

Load pick-up

Rated speed rpm : 250  
rack travel mm : 12.20

Rated speed rpm : 1000  
CRT mm max. : 1.45  
rack travel mm : 5.60  
Rated speed rpm : 385

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.15  
Tolerance mm : ± 0.05

Rated speed rpm : 1800  
rack travel mm : 12.00  
Tolerance mm : ± 0.10

Rated speed rpm : 2000  
rack travel mm : 11.80  
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 1800  
 Del. quantity  
 cm3/1000 strokes : 40.8  
 Tolerance  
 cm3/1000 strokes : + 0.8  
 Check tolerance  
 cm3/1000S. : + 1.8  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 2000  
 Spreed  
 Del. quantity  
 cm3/1000 strokes : 41.0  
 Tolerance  
 cm3/1000 strokes : + 1.0  
 Check tolerance  
 cm3/1000S. : + 2.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

#### HIGH IDLE

Ref. pressure  
 ALDA / ADA hPa : -  
 Rated speed rpm : 2250  
 rack travel mm : 7.70  
 Tolerance mm : + 0.25  
 Del. quantity  
 cm3/1000 strokes : 25.5  
 Tolerance  
 cm3/1000 strokes : + 2.0  
 Check tolerance  
 cm3/1000S. : + 3.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 2.5  
 Check tolerance  
 cm3/1000S. : 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 21.60  
 Tolerance mm : + 1.50  
 Del. quantity  
 cm3/1000 strokes : 59.0

Tolerance  
 cm3/1000 strokes : +- 4.0  
 Check tolerance  
 cm3/1000S. : +- 5.0  
 Spreed  
 Tolerance  
 cm3/1000 strokes : 6.0  
 Check tolerance  
 cm3/1000S. : 6.0

#### LOW IDLE

Rated speed rpm : 385  
 Del. quantity  
 cm3/1000 strokes : 10.3  
 Check tolerance  
 cm3/1000S. : +- 2.3  
 Spreed  
 Check tolerance  
 cm3/1000S. : 1.5

control lever  
 position degree : > 47.00

control lever  
 position degree : < 44.50

#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever  
 position degree : 14.0  
 tolerance degree : + 2.0

Rated speed rpm : 400

Rack travel in mm : 8.50  
 Tolerance mm : + 0.80  
 Del. quantity  
 cm3/1000 strokes : 22.0  
 Tolerance  
 cm3/1000 strokes : + 3.5  
 Check tolerance  
 cm3/1000S. : + 4.5  
 Vacuum hPa : 400.0

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 385  
Vacuum hPa : -450.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.03.97  
Test oil : ISO 4113  
Combination No. : 0 402 996 307  
Injection pump  
Pump designation : PES6P120A720RS8512  
 : -2  
EP type number : 0 412 926 212  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 024  
Cust. part No. : CCEP 5156 66-242

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : 062465A42B42C42

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 084  
Inlet press. bar : 3.0  
Tolerance bar : + 0.1  
Test nozzle holder  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 008  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.25  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 12.00  
Tolerance mm : + 0.20  
Firing order : 1- 5- 3- 6- 2-  
 : 4  
Phasing : 0-60-120-180-240  
 : -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Start of delivery mark  
°NW after s.o.d. : -0.15  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Barrel no. : 1  
Beginning of delivery difference  
betw. rack trav.  
mm : 20.50

and maximum rack  
travel : 12.00  
Difference \* CS : 3.10

#### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in

stop position.  
CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

#### ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

#### (C) INJECTION PUMP WITH POSITIONER

##### TEST POINT V1

Rated speed rpm : 900  
Uact V : 3.050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 310.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 625  
Uact V : 3.260  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 392.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +/- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +/- 12.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 16.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 18.0

TEST POINT L1

Rated speed rpm	:	325
Uact V	:	1.310
Tolerance Volt	:	± 0.060
Check tolerance		
Volt	:	± 0.070
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	33.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 3.0
Speed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	6.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	14.0

---

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Uact V	:	4.700
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	195.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 19.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 22.0
Speed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	40.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	50.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 400 093 226  
Injection pump  
Pump designation : PES6A80D410RS2755  
EP type number : 9 400 093 005  
Governor  
Governor design. : RSV325...1150A1C1168  
: L  
Governor no. : 9 420 083 293  
Cust. part No. :

Customer-spec. information  
Customer : DEUTZ-ARGENTINA  
Motor : F6L913  
Power KW : 96.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 1.95  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 10.50  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 9.35  
Tolerance mm : + 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : + 2.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

Rated speed rpm : 325

Rack travel in mm : 6.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 6.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 8.30  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1230  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1380

---

##### LOW IDLE

control lever  
position degree : 81.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### Testing:

Rated speed rpm : 325  
rack travel mm : 6.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 530  
Tolerance 1/min : ± 30

---

##### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 9.35  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.15

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 62.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Speed

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 400 093 227  
Injection pump  
Pump designation : PES6A85D410RS2756  
EP type number : 9 400 093 006  
Governor  
Governor design. : RSV325...1150A1C1168  
: L  
Governor no. : 9 420 083 293  
Cust. part No. :

Customer-spec. information  
Customer : DEUTZ-ARGENTINA  
Motor : BF6L913  
Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 32.0  
Tolerance bar : ± 1.0  
Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 11.35  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 8.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

##### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 10.30  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1235  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1380

##### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 7.50  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### Testing:

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min : ± 30

##### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 11.35  
Tolerance mm : ± 0.05



Rated speed rpm : 500  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 79.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 400 093 228  
Injection pump  
Pump designation : PES5A80D410RS2526  
EP type number : 9 400 093 007  
Governor  
Governor design. : RSV325...1075A1C1167  
: L  
Governor no. : 9 420 083 292  
Cust. part No. :

Customer-spec. information  
Customer : DEUTZ-ARGENTINA  
Motor : F5L913  
Power KW : 87.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test Lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 5- 4- 2  
Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1075  
Rack travel in mm : 9.45  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance cm <sup>3</sup> /1000S.	:	4.0
--	---	-----

Rated speed rpm	:	325
-----------------	---	-----

Rack travel in mm	:	6.50
Tolerance mm	:	± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	7.5
Tolerance cm <sup>3</sup> /1000 strokes	:	± 1.5
Check tolerance cm <sup>3</sup> /1000S.	:	± 3.5
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance cm <sup>3</sup> /1000S.	:	6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.65
Tolerance mm	:	± 0.35
governor spring pre-tension click setting x	:	6.80

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1075
Aneroid pressure hPa	:	-
Del. quantity cm <sup>3</sup> /1000 strokes	:	53.0
Tolerance cm <sup>3</sup> /1000 strokes	:	± 0.5
Check tolerance cm <sup>3</sup> /1000S.	:	± 2.0
Speed Tolerance cm <sup>3</sup> /1000 strokes	:	2.5
Check tolerance cm <sup>3</sup> /1000S.	:	4.0

#### CONTROL LEVER

control lever position degree	:	117.0
tolerance degree	:	± 4.0

RATED SPEED rack travel mm	:	8.40
Rated speed rpm	:	1120
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	1165
Tolerance 1/min	:	± 15

rack travel mm	:	0.85
Tolerance mm	:	± 0.55
Rated speed rpm	:	1320

#### LOW IDLE

control lever position degree	:	84.0
tolerance degree	:	± 4.0

#### Setting point w/out bumper spring

Rated speed rpm	:	325
rack travel mm	:	6.00
Tolerance mm	:	± 0.10

Rated speed rpm	:	100
-----------------	---	-----

CRT mm min.	:	> 19.00
-------------	---	---------

#### Testing:

Rated speed rpm	:	325
rack travel mm	:	6.50
Tolerance mm	:	± 0.10

rack travel mm	:	2.00
Rated speed rpm	:	540
Tolerance 1/min	:	± 30

#### TORQUE CONTROL

Rated speed rpm	:	1075
rack travel mm	:	9.45
Tolerance mm	:	± 0.05

Rated speed rpm	:	500
rack travel mm	:	11.25
Tolerance mm	:	± 0.05

Rated speed rpm : 800  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.15

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 62.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

## BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 400 093 229  
Injection pump  
Pump designation : PES4A80D410RS2523  
EP type number : 9 400 093 008  
Governor  
Governor design. : RSV325...1075A1C1167  
: L  
Governor no. : 9 420 083 292  
Cust. part No. :

Customer-spec. information  
Customer : DEUTZ-ARGENTINA  
Motor : F4L913  
Power KW : 56.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 1.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 3- 4- 2  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1075  
Rack travel in mm : 10.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

---

Check tolerance cm <sup>3</sup> /1000S.	:	4.0
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---

Rated speed rpm	:	325
Rack travel in mm	:	6.50
Tolerance mm	:	+ 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	:	7.5
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 1.5
Check tolerance cm <sup>3</sup> /1000S.	:	+ 3.5
Spread		
Tolerance cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance cm <sup>3</sup> /1000S.	:	6.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.65
Tolerance mm	:	+ 0.35
governor spring pre-tension		
click setting x	:	7.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1075
Aneroid pressure hPa	:	-
Del. quantity cm <sup>3</sup> /1000 strokes	:	60.5
Tolerance cm <sup>3</sup> /1000 strokes	:	+ 0.5
Check tolerance cm <sup>3</sup> /1000S.	:	+ 2.0
Spread		
Tolerance cm <sup>3</sup> /1000 strokes	:	2.5
Check tolerance cm <sup>3</sup> /1000S.	:	4.0

---

CONTROL LEVER

control lever position degree	:	119.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	9.20
Rated speed rpm	:	1120
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1175
Tolerance 1/min	:	+ 15

rack travel mm	:	0.85
Tolerance mm	:	+ 0.55
Rated speed rpm	:	1320

---

LOW IDLE

control lever position degree	:	85.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm	:	325
rack travel mm	:	6.00
Tolerance mm	:	+ 0.10

Rated speed rpm	:	100
-----------------	---	-----

CRT mm min.	:	> 19.00
-------------	---	---------

Testing:

Rated speed rpm	:	325
rack travel mm	:	6.50
Tolerance mm	:	+ 0.10

rack travel mm	:	2.00
Rated speed rpm	:	550
Tolerance 1/min	:	+ 30

---

TORQUE CONTROL

Rated speed rpm	:	1075
rack travel mm	:	10.25
Tolerance mm	:	+ 0.05

Rated speed rpm	:	500
rack travel mm	:	11.05
Tolerance mm	:	+ 0.05

Rated speed rpm : 750  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.15

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 61.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113

Combination No. : 9 407 083 263

Injection pump  
Pump designation : PES6A90D32QRS2605  
EP type number : 9 400 083 078

Governor  
Governor design. : RSV325...900A1C2132R  
Governor no. : 9 420 083 280

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TD 229-6  
Power KW : 89.7

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.5



Tolerance  
cm3/1000 strokes : +- 0.5

Check tolerance  
cm3/1000S. : +- 2.5

Spread

Tolerance  
cm3/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 7.00  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 15.5

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.0

Spread

Tolerance  
cm3/1000 strokes : 4.5

Check tolerance  
cm3/1000S. : 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

governor spring  
pre-tension  
click setting x : 4.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 73.5

Tolerance  
cm3/1000 strokes : +- 0.5

Check tolerance  
cm3/1000S. : +- 2.5

Spread

Tolerance  
cm3/1000 strokes : 3.0

Check tolerance  
cm3/1000S. : 7.0

#### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree : +- 4.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 923  
rack travel mm : 9.20

Rated speed rpm : 958  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1050

Rated speed rpm : 924  
rack travel mm : 9.20

Rated speed rpm : 959  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1050

Rated speed rpm : 925  
rack travel mm : 9.20

Rated speed rpm : 960  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1050

Rated speed rpm : 926  
rack travel mm : 9.20

Rated speed rpm : 961  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1050

Rated speed rpm : 927  
rack travel mm : 9.20

Rated speed rpm : 962  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1050

Rated speed rpm : 928  
rack travel mm : 9.20

Rated speed rpm : 963  
Tolerance 1/min : +- 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1050

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 6.50  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325  
rack travel mm : 7.00  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 395  
Tolerance 1/min : +- 30

---

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 10.25  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 10.30  
Tolerance mm : +- 0.10

Rated speed rpm : 375  
rack travel mm : 11.30  
Tolerance mm : +- 0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : +- 1.00

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 7.00  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 15.5

Tolerance  
cm3/1000 strokes : +- 2.0

Check tolerance  
cm3/1000S. : +- 4.0

Speed  
Tolerance  
cm3/1000 strokes : 4.5

Check tolerance  
cm3/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 270  
Injection pump  
Pump designation : PES6A90D410RS2293  
EP type number : 0 410 896 031  
Governor  
Governor design. : RQV300...1400AB740  
: -1L  
Governor no. : 9 420 080 153  
Cust. part No. :

## Customer-spec. information

Customer : MBA  
Motor : OM352-A  
Power KW : 117.8

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 11.05  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 71.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed

Tolerance	
cm3/1000 strokes	: 3.0
<hr/>	
Check tolerance	
cm3/1000S.	: 7.0
<hr/>	

Rated speed rpm	: 300
Rack travel in mm	: 7.50
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes	: 11.0
Tolerance	
cm3/1000 strokes	: + 2.0
Check tolerance	
cm3/1000S.	: + 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 4.5
Check tolerance	
cm3/1000S.	: 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 775
guide sleeve	
travel mm	: 4.35
Tolerance mm	: + 0.25

Rated speed rpm	: 1460
guide sleeve	
travel mm	: 8.50
Tolerance mm	: + 0.10

Rated speed rpm	: 300
guide sleeve	
travel mm	: 0.95
Tolerance mm	: + 0.25

Rated speed rpm	: 550
guide sleeve	
travel mm	: 2.85
Tolerance mm	: + 0.15

Rated speed rpm	: 950
guide sleeve	
travel mm	: 5.35
Tolerance mm	: + 0.15

GUIDE SLEEVE POSITION

control lever	
position degree	: - 1
Rated speed rpm	: 1420

Rack travel in mm	: 16.50
Tolerance mm	: + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1400
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 71.5
Tolerance	
cm3/1000 strokes	: + 0.5
Check tolerance	
cm3/1000S.	: + 2.5
Spreed	
Tolerance	
cm3/1000 strokes	: 3.0
Check tolerance	
cm3/1000S.	: 7.0

CONTROL LEVER

control lever	
position degree	: 116.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 10.00
Rated speed rpm	: 1445
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1570
Tolerance 1/min	: + 15

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 1700

LOW IDLE

control lever	
position degree	: 68.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 100
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CRT mm min. : > 9.00

#### Testing:

Rated speed rpm : 300  
rack travel mm : 7.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 435

---

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.10

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 78.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 7.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 279  
Injection pump  
Pump designation : PES6A80D320RS1271  
EP type number : 9 400 083 058  
Governor  
Governor design. : RSV350...1400A2C2179  
: R  
Governor no. : 9 420 083 281  
Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : D229-6  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 9.65  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.0

Tolerance	
cm <sup>3</sup> /1000 strokes	: + 0.5
Check tolerance	
cm <sup>3</sup> /1000S.	: + 2.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 2.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 4.0

Rated speed rpm	: 350
Rack travel in mm	: 7.40
Tolerance mm	: + 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 12.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: + 1.5
Check tolerance	
cm <sup>3</sup> /1000S.	: + 3.5
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: + 0.35
governor spring	
pre-tension	
click setting x	: 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1400
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 55.0

Tolerance	
cm <sup>3</sup> /1000 strokes	: + 0.5
Check tolerance	
cm <sup>3</sup> /1000S.	: + 2.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 2.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 4.0

##### CONTROL LEVER

control lever	
position degree	: 105.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 8.60
Rated speed rpm	: 1445
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1490
Tolerance 1/min	: + 15

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1650

##### LOW IDLE

control lever	
position degree	: 72.0
tolerance degree	: + 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 350
rack travel mm	: 6.90
Tolerance mm	: + 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
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##### Testing:

Rated speed rpm	: 350
rack travel mm	: 7.40
Tolerance mm	: + 0.10

rack travel mm	: 2.00
Rated speed rpm	: 660
Tolerance 1/min	: + 30

---

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 9.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 6.0

---

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 7.40  
Tolerance mm :  $\pm$  0.10



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 281  
Injection pump  
Pump designation : PES6A80D320RS1271  
EP type number : 9 400 083 058  
Governor  
Governor design. : RSV350...1150A2C2129  
: -IR  
Governor no. : 9 420 083 282  
Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : D 229-6  
Power KW : 77.2

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 9.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

governor spring  
pre-tension  
click setting x : 4.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

##### CONTROL LEVER

control lever

position degree : 96.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 8.50

Rated speed rpm : 1175

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1400

##### LOW IDLE

control lever

position degree : 73.0

tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350

rack travel mm : 6.50

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### Testing:

Rated speed rpm : 350

rack travel mm : 7.00

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 645

Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 52.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 282  
Injection pump  
Pump designation : PES6A90D320RS2605  
EP type number : 9 400 083 078  
Governor  
Governor design. : RSV325...1400A2C2096  
: R  
Governor no. : 9 420 083 168  
Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TD 229-6  
Power KW : 95.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 922 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery differende  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1400  
Rack travel in mm : 8.05  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 65.5

Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 0.5
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 2.5
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 7.0
Rated speed rpm	: 325
Rack travel in mm	: 6.50
Tolerance mm	: ± 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 11.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 4.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 7.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: ± 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1400
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 65.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: ± 0.5
Check tolerance	
cm <sup>3</sup> /1000S.	: ± 2.5

Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 7.0

CONTROL LEVER

control lever	
position degree	: 56.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 7.00
Rated speed rpm	: 1445
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1480
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1650

LOW IDLE

control lever	
position degree	: 23.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 325
rack travel mm	: 6.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
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Testing:

Rated speed rpm	: 325
rack travel mm	: 6.50
Tolerance mm	: ± 0.10

rack travel mm	: 2.00
Rated speed rpm	: 650
Tolerance 1/min	: ± 30

TORQUE CONTROL

Rated speed rpm	: 1400
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rack travel mm	:	8.05
Tolerance mm	:	± 0.05
Rated speed rpm	:	500
rack travel mm	:	8.95
Tolerance mm	:	± 0.05
Rated speed rpm	:	800
rack travel mm	:	8.55
Tolerance mm	:	± 0.15
Rated speed rpm	:	1200
rack travel mm	:	8.10
Tolerance mm	:	± 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	51.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 1.5
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 3.5
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	8.0

---

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	800
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	53.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 1.5
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 3.5
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	8.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.00
Tolerance mm	:	± 1.00

---

#### LOW IDLE

Rated speed rpm	:	325
Rack travel in mm	:	6.50
Tolerance mm	:	± 0.10
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	11.5
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 2.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	± 4.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	4.5
Check tolerance		
cm <sup>3</sup> /1000S.	:	7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 283  
Injection pump  
Pump designation : PES3A80D32ORS1281  
EP type number : 9 400 083 054  
Governor  
Governor design. : RSV350...1150A2C2129  
: -1R  
Governor no. : 9 420 083 282  
Cust. part No. :

Customer spec. information  
Customer : MWM  
Motor : D 229-3  
Power KW : 55.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 046  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 2- 3  
Phasing : 0-120-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Beginning of delivery differende

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 9.45  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 2.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

Rated speed rpm : 350

Rack travel in mm : 7.00

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : + 0.35

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure

hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 2.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 8.40

Rated speed rpm : 1195

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1250

Tolerance 1/min : + 15

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1400

---

LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.50  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm : + 0.10

rack travel mm : 2.00

Rated speed rpm : 680

Tolerance 1/min : + 30

---

TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 9.45

Tolerance mm : + 0.05



Rated speed rpm : 500  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
  
Combination No. : 9 407 083 284  
  
Injection pump  
Pump designation : PES4A80D320RS1282  
EP type number : 9 400 083 056  
  
Governor  
Governor design. : RSV350...1150A2C2129  
: -1R  
Governor no. : 9 420 083 282

Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : D 229-4  
Power KW : 53.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 8.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 6.50

Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

##### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 7.90  
Rated speed rpm : 1175  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.00  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### Testing:

Rated speed rpm : 350  
rack travel mm : 6.50  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 625  
Tolerance 1/min : +- 30

---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 8.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 9.95  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 286  
Injection pump  
Pump designation : PES6A80D320RS1271  
EP type number : 9 400 083 058  
Governor  
Governor design. : RSV350...1500A2B2028  
: -1R  
Governor no. : 9 420 083 175  
Cust. part No. :

Customer spec. information  
Customer : MWM  
Motor : D 229-6

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference °CS : 4.50

## BASIC SETTING

Rated speed rpm : 1480  
Rack travel in mm : 9.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : ± 0.35

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1480  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

##### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 8.20  
Rated speed rpm : 1525  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1575  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1700

##### LOW IDLE

control lever  
position degree : 20.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.50  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### Testing:

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm : ± 0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 630  
Tolerance 1/min : ± 30

##### TORQUE CONTROL

Rated speed rpm : 1480

rack travel mm : 9.25  
 Tolerance mm :  $\pm$  0.05  
  
 Rated speed rpm : 500  
 rack travel mm : 10.85  
 Tolerance mm :  $\pm$  0.05  
  
 Rated speed rpm : 1300  
 rack travel mm : 9.50  
 Tolerance mm :  $\pm$  0.10  
  
 Rated speed rpm : 1000  
 rack travel mm : 10.35  
 Tolerance mm :  $\pm$  0.15

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 9.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.5  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

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End of test specification sheet

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#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 52.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 56.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 20.00  
 Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350  
  
 Rack travel in mm : 7.00  
 Tolerance mm :  $\pm$  0.10

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 287  
Injection pump  
Pump designation : PES6A80D320RS1271  
EP type number : 9 400 083 058  
Governor  
Governor design. : RSV350...1000A1B628  
: -1R  
Governor no. : 9 420 083 176  
Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : D 229-6  
Power KW : 70.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 922 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery differende  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1025  
Rack travel in mm : 9.05  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0



Tolerance  
cm3/1000 strokes : +- 0.5

Check tolerance  
cm3/1000S. : +- 2.0

#### Speed

Tolerance  
cm3/1000 strokes : 2.5

Check tolerance  
cm3/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 9.0

Tolerance  
cm3/1000 strokes : +- 1.5

Check tolerance  
cm3/1000S. : +- 3.5

#### Speed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 300

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 43.0

Tolerance  
cm3/1000 strokes : +- 0.5

Check tolerance  
cm3/1000S. : +- 2.0

Speed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 4.0

#### CONTROL LEVER

control lever  
position degree : 56.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 8.00  
Rated speed rpm : 1070  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1095  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1250

#### LOW IDLE

control lever  
position degree : 24.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.50  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 580  
Tolerance 1/min : +- 30

#### TORQUE CONTROL

Rated speed rpm : 1025

rack travel mm	:	9.05
Tolerance mm	:	± 0.05
Rated speed rpm	:	500
rack travel mm	:	10.65
Tolerance mm	:	± 0.05
Rated speed rpm	:	700
rack travel mm	:	10.20
Tolerance mm	:	± 0.10
Rated speed rpm	:	900
rack travel mm	:	9.35
Tolerance mm	:	± 0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	48.5
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 1.5
Check tolerance		
cm <sup>3</sup> /1000s.	:	± 3.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance		
cm <sup>3</sup> /1000s.	:	7.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	700
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	48.5
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 1.5
Check tolerance		
cm <sup>3</sup> /1000s.	:	± 3.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance		
cm <sup>3</sup> /1000s.	:	7.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.00
Tolerance mm	:	± 1.00

---

#### LOW IDLE

Rated speed rpm	:	350
Rack travel in mm	:	7.00
Tolerance mm	:	± 0.10
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	9.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	± 1.5
Check tolerance		
cm <sup>3</sup> /1000s.	:	± 3.5
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance		
cm <sup>3</sup> /1000s.	:	6.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 288  
Injection pump  
Pump designation : PES6A80D32ORS1271  
EP type number : 9 400 083 058  
Governor  
Governor design. : RSV350...1100A2B664  
: -1R  
Governor no. : 9 420 083 177  
Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : D 229-6  
Power KW : 66.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 922 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 9.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 47.0

Tolerance cm3/1000 strokes	: +- 0.5
<hr/>	
Check tolerance cm3/1000s.	: +- 2.0
<hr/>	
Spreed	
Tolerance cm3/1000 strokes	: 2.5
<hr/>	
Check tolerance cm3/1000s.	: 4.0
<hr/>	
Rated speed rpm : 350	
Rack travel in mm	: 7.00
Tolerance mm	: +- 0.10
Del. quantity cm3/1000 strokes	: 8.5
Tolerance cm3/1000 strokes	: +- 1.5
Check tolerance cm3/1000s.	: +- 3.5
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000s.	: 6.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.65
Tolerance mm	: +- 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: -
Del. quantity cm3/1000 strokes	: 47.0
Tolerance cm3/1000 strokes	: +- 0.5
Check tolerance cm3/1000s.	: +- 2.0

Spreed Tolerance cm3/1000 strokes	: 2.5
Check tolerance cm3/1000s.	: 4.0

CONTROL LEVER

control lever position degree	: 43.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 8.20
Rated speed rpm	: 1145
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1185
Tolerance 1/min	: +- 15

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1450

LOW IDLE

control lever position degree	: 17.0
tolerance degree	: +- 4.0

Setting point w/out bumper spring

Rated speed rpm	: 350
rack travel mm	: 6.50
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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Testing:

Rated speed rpm	: 350
rack travel mm	: 7.00
Tolerance mm	: +- 0.10

rack travel mm	: 2.00
Rated speed rpm	: 540
Tolerance 1/min	: +- 30

Rated speed rpm	: 650
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CRT mm max.	: < 1.00
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#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 9.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.30

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 6.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 289  
Injection pump  
Pump designation : PES6A80D320RS1271  
EP type number : 9 400 083 058  
Governor  
Governor design. : RSV350...1200A2B1108  
: -1R  
Governor no. : 9 420 083 173  
Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : D 229-6  
Power KW : 84.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 922 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Beginning of delivery differende  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1200  
Rack travel in mm : 9.75  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 3.5

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : +- 2.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

##### CONTROL LEVER

control lever  
position degree : 46.0  
tolerance degree : +- 4.0

##### RATED SPEED

rack travel mm : 8.70  
Rated speed rpm : 1245  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 18.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.50  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### Testing:

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 660  
Tolerance 1/min : +- 30

##### TORQUE CONTROL

Rated speed rpm : 1200

rack travel mm	:	9.75
Tolerance mm	:	+ 0.05
Rated speed rpm	:	500
rack travel mm	:	11.25
Tolerance mm	:	+ 0.05
Rated speed rpm	:	800
rack travel mm	:	10.90
Tolerance mm	:	+ 0.10
Rated speed rpm	:	1000
rack travel mm	:	10.15
Tolerance mm	:	+ 0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	57.5
Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ 1.5
Check tolerance		
cm <sup>3</sup> /1000S.	:	+ 3.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance		
cm <sup>3</sup> /1000S.	:	7.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	800
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	58.0
Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ 1.5
Check tolerance		
cm <sup>3</sup> /1000S.	:	+ 3.0
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	3.5
Check tolerance		
cm <sup>3</sup> /1000S.	:	7.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	20.00
Tolerance mm	:	+ 1.00

---

#### LOW IDLE

Rated speed rpm	:	350
Rack travel in mm	:	7.00
Tolerance mm	:	+ 0.10
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	8.5
Tolerance		
cm <sup>3</sup> /1000 strokes	:	+ 1.5
Check tolerance		
cm <sup>3</sup> /1000S.	:	+ 3.5
Spreed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	4.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	6.0

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End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 290  
Injection pump  
Pump designation : PES6A80D320RS1271  
EP type number : 9 400 083 058  
Governor  
Governor design. : RSV350...1000A1C2029  
: -1R  
Governor no. : 9 420 083 285  
Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : D 229-6

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °Nw : ± 0.75  
Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1000  
Rack travel in mm : 9.75  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.5

Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 0.5
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 2.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 2.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 4.0

Rated speed rpm	: 350
Rack travel in mm	: 7.00
Tolerance mm	: +- 0.10
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 8.5
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 1.5
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 3.5
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: +- 0.35
governor spring	
pre-tension	
click setting x	: 5.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure	
hPa	: -
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 49.5

Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 0.5
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 2.0
Spreed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 2.5
Check tolerance	
cm <sup>3</sup> /1000S.	: 4.0

#### CONTROL LEVER

control lever	
position degree	: 58.0
tolerance degree	: +- 4.0

control lever	
position degree	: 108.0
tolerance degree	: +- 4.0

#### RATED SPEED

rack travel mm	: 8.70
Rated speed rpm	: 1045
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1085
Tolerance 1/min	: +- 15

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1200

#### LOW IDLE

control lever	
position degree	: 80.0
tolerance degree	: +- 4.0

control lever	
position degree	: 30.0
tolerance degree	: +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 350
rack travel mm	: 6.50
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
-------------	-----------

Testing:

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 555  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00

---

#### LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 8.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.02.97  
Test oil : ISO 4113  
Combination No. : 9 407 083 296  
Injection pump  
Pump designation : PES4A80D320RS1282  
EP type number : 9 400 083 056  
Governor  
Governor design. : RSV350...1500A2C2122  
: -2R  
Governor no. : 9 420 083 286

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : D 229-4  
Power KW : 64.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 003  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 4.50

## BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 9.65  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 62.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm3/1000S. : +- 2.0

Spread

Tolerance  
cm3/1000 strokes : 2.5

Check tolerance  
cm3/1000S. : 4.0

Rated speed rpm : 350

Rack travel in mm : 7.00

Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 13.5

Tolerance  
cm3/1000 strokes : +- 1.5

Check tolerance  
cm3/1000S. : +- 3.5

Spread  
Tolerance

cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 62.0  
Tolerance  
cm3/1000 strokes : +- 0.5

Check tolerance  
cm3/1000S. : +- 2.0

Spread

Tolerance  
cm3/1000 strokes : 2.5

Check tolerance  
cm3/1000S. : 4.0

##### CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 8.60  
Rated speed rpm : 1575  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1625  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1800

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.50  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### Testing:

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 650  
Tolerance 1/min : +- 30

---

#### TORQUE CONTROL

Rated speed rpm : 1500  
rack travel mm : 9.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.04.97  
Test oil : ISO 4113

Combination No. : 0 401 876 337

Injection pump  
Pump designation : PE6P130A320S521  
EP type number : 0 411 836 044

Governor  
Governor design. : RSV350...1500POA524  
Governor no. : 0 421 833 256

Cust. part No. :

Customer-spec. information  
Customer : ISOTTA  
Motor : ID38 SS-6V

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 19.50  
Tolerance mm : ± 1.50

Firing order : 1A- 2- 3A- 4- 5A-  
: 6

Phasing : 0-45-120-165-240  
: -285  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1500

Rack travel in mm : 12.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 6.90

Tolerance mm : + 0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1500  
Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5

Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.50  
Rated speed rpm : 1545  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1665  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1750

rack travel mm : 4.00  
Rated speed rpm : 1680  
Tolerance 1/min : + 15

LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 6.40  
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 350  
rack travel mm : 6.90  
Tolerance mm : + 0.20

rack travel mm : 2.00  
Rated speed rpm : 555  
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1500  
rack travel mm : 12.55  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 12.60



Tolerance mm :  $\pm$  3.10

Rated speed rpm : 400  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 500  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.01

Rated speed rpm : 500  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.01

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 900  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 300  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

---

Delivery for shutoff assemblies  
(refer to cam sequence).

Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 198.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 350  
Rack travel in mm : 6.90  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.04.97  
Test oil : ISO 4113  
Combination No. : 0 402 640 816  
Injection pump  
Pump designation : PE12P120A520LS7824  
EP type number : 0 412 620 816

Governor  
Governor design. : RQV250...1150PA902  
: -3  
Governor no. : 0 421 813 761

Cust. part No. : 2-7959

Customer spec. information  
Customer : MAN  
Motor : D2842LXE  
Power KW : 662.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test Lines : 1 680 750 067  
Outside diameter : 6.0

002

x inside diameter : 1.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.50  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 12-1A- 5- 9A- 8  
: - 3A- 4-11A- 10  
: - 2A- 6- 7A

Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.80

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.30  
Tolerance mm : ± 0.10

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.00  
Tolerance mm : ± 0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.20  
Tolerance mm : ± 0.30

Rated speed rpm : 750  
guide sleeve  
travel mm : 5.70  
Tolerance mm : ± 0.20

Rated speed rpm : 1400  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1225

Rack travel in mm : 16.50  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 11.70  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1295  
Tolerance 1/min : ± 20

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. : > 8.90

#### Testing:

Rated speed rpm : 250  
rack travel mm : 7.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 8.70  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 400  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 100  
rack travel mm : 9.85  
Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 170

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 190

#### FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 19.30  
Tolerance mm :  $\pm 1.70$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.0$

---

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 250  
Rack travel in mm : 7.80  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 4.0$

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.04.97  
Test oil : ISO 4113  
Combination No. : 0 402 640 833  
Injection pump  
Pump designation : PE12P120A520LS7829  
: -1  
EP type number : 0 412 620 827  
Governor  
Governor design. : RQV300...1150PA943  
: -1  
Governor no. : 0 421 813 869  
Cust. part No. : 3-7156

## Customer-spec. information

Customer : MAN  
Motor : D2842LZE  
Power KW : 809.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test Lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 12-1A- 5- 9A- 8  
: - 3A- 4-11A- 10  
: - 2A- 6- 7A  
Phasing : 0-45-60-105-120  
: -165-180-225-240  
: -285-300-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 12

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 14.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 338.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 7.40

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.20  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 750  
guide sleeve  
travel mm : 5.90  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1400  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1260

Rack travel in mm : 13.90  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 338.0  
Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 124.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 13.90  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1315  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 86.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.90

Testing:

Rated speed rpm : 300  
rack travel mm : 7.40  
Tolerance mm : +- 0.10

Rated speed rpm : 345

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.95  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 7.40  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
rack travel mm : 8.60  
Tolerance mm : +- 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 14.95  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm : +- 0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 470  
rack travel mm : 12.60  
Tolerance mm : +- 0.20

Pressure hPa : 100  
rack travel mm : 9.55  
Tolerance mm : +- 0.05

Start interlock

D08

Rated speed rpm : > 100  
Rated speed rpm : < 240

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 260

#### FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.1

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

#### STARTING FUEL DELIVERY



Rated speed rpm : 100  
rack travel mm : 19.30  
Tolerance mm :  $\pm$  1.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

---

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 300  
Rack travel in mm : 7.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.04.97  
Test oil : ISO 4113  
Combination No. : 0 402 648 916  
Injection pump  
Pump designation : PE8P120A520LS7818-1  
EP type number : 0 412 628 857  
Governor  
Governor design. : RQV250...1150PA902  
Governor no. : 0 421 813 720

Cust. part No. : 3-7150

Customer-spec. information  
Customer : MAN  
Motor : D2848LXE 40  
Power KW : 500.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Test nozzle holder assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 8-7A- 2- 6A- 3  
                  : - 5A- 4- 1A  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1150  
Rack travel in mm : 14.25  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 319.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.40

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.50  
Tolerance mm : + 0.10

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.50  
Tolerance mm : + 0.10

Rated speed rpm : 850  
guide sleeve  
travel mm : 6.60  
Tolerance mm : + 0.30

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.70  
Tolerance mm : + 0.30

Rated speed rpm : 1450  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1250

Rack travel in mm : 13.10  
Tolerance mm : + 1.40

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1300  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 319.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 13.20  
Rated speed rpm : 1195  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1325  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 84.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.90

#### Testing:

Rated speed rpm : 250  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 6.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 470  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 100  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm : > 100

Rated speed rpm : < 200

Check  
speed 1/min : > 80

Check  
speed 1/min : < 220

#### FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

---

LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 250

Rack travel in mm : 7.40

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 56.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.04.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 977  
  
Injection pump  
Pump designation : PE8P120A520LS7818-2  
EP type number : 0 412 628 887  
  
Governor  
Governor design. : RQV300...1150PA1039  
: -2K  
Governor no. : 0 421 815 316  
  
Cust. part No. : 3-7224

Customer-spec. information  
Customer : MAN  
Motor : D2848LE401  
Power KW : 500.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 019  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.50  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 8-7A- 2- 6A- 3  
: - 5A- 4- 1A

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 330.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 7.10

Tolerance mm : +- 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 56.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206

guide sleeve

travel mm : 10.43

Tolerance mm : +- 0.25

Rated speed rpm : 300

guide sleeve

travel mm : 2.24

Tolerance mm : +- 0.25

Rated speed rpm : 795

guide sleeve

travel mm : 6.88

Tolerance mm : +- 0.25

Rated speed rpm : 329

guide sleeve

travel mm : 2.75

Tolerance mm : +- 0.25

Rated speed rpm : 379

guide sleeve

travel mm : 3.53

Tolerance mm : +- 0.25

Rated speed rpm : 450

guide sleeve  
travel mm : 4.21  
Tolerance mm : +- 0.25

Rated speed rpm : 1450

guide sleeve

travel mm : 13.50

Tolerance mm : +- 0.50

---

#### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1280

Rack travel in mm : 13.40

Tolerance mm : +- 1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure

hPa : 1500

Del. quantity

cm<sup>3</sup>/1000 strokes : 330.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance

cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever

position degree : 120.0

tolerance degree : +- 4.0

---

#### RATED SPEED

rack travel mm : 13.40

Rated speed rpm : 1195

Tolerance 1/min : +- 8

rack travel mm : 4.00

Rated speed rpm : 1325

Tolerance 1/min : +- 15

rack travel mm : 0.50

Tolerance mm : +- 0.50

Rated speed rpm : 1450

---

## LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  8.20

### Testing:

Rated speed rpm : 300  
rack travel mm : 7.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 345

---

## TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 6.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 1150  
Pressure hPa : 1500  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
Pressure hPa : -  
rack travel mm : 9.80

Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 1000  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 480  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

---

### Start interlock

Rated speed rpm :  $>$  200  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $<$  260

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 302.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Delivery for shutoff assemblies



(refer to cam sequence).

Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

---

Delivery for shutoff assemblies

(refer to cam sequence).

Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

---

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.

Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 300

Rack travel in mm : 7.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.04.97  
Test oil : ISO 4113  
Combination No. : 0 402 649 807  
Injection pump  
Pump designation : PE10P120A520LS7811  
EP type number : 0 412 629 802  
Governor  
Governor design. : RQV250...1150PA902  
Governor no. : 0 421 813 720

Cust. part No. : 2-7961

Customer-spec. information  
Customer : MAN  
Motor : D 2840 LX  
Power KW : 603.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 067  
Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 10-9A- 4- 1A- 8  
: - 7A- 6- 3A- 5  
: - 2A

Phasing : 0-45-72-117-144  
: -189-216-261-288  
: -333  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 10

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 297.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.40

Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 4.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.60  
Tolerance mm : +- 0.10

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.30  
Tolerance mm : +- 0.20

Rated speed rpm : 500  
guide sleeve  
travel mm : 4.00  
Tolerance mm : +- 0.20

Rated speed rpm : 850  
guide sleeve  
travel mm : 6.70  
Tolerance mm : +- 0.20

Rated speed rpm : 1400  
guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1200

Rack travel in mm : 16.50  
Tolerance mm : +- 1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 297.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 12.70  
Rated speed rpm : 1195  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1305  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1450

#### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. : > 8.90

#### Testing:

Rated speed rpm : 250  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1600  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 470  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 100  
rack travel mm : 9.65  
Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 220

#### FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 19.30  
Tolerance mm :  $\pm$  1.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

---

#### LOW IDLE

Delivery for standard plunger/barrel assemblies.  
Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 250  
Rack travel in mm : 7.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 56.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.04.97  
Test oil : ISO 4113  
Combination No. : 0 402 649 813  
Injection pump  
Pump designation : PE10P120A520LS7825  
: -1  
EP type number : 0 412 629 809  
Governor  
Governor design. : RGV250...1150PA902  
: -3  
Governor no. : 0 421 813 761  
Cust. part No. : 3-7151

Customer-spec. information  
Customer : MAN  
Motor : D 2840 LXE  
Power KW : 603.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 10-9A- 4- 1A- 8  
: - 7A- 6- 3A- 5  
: - 2A

Phasing : 0-45-72-117-144  
: -189-216-261-288  
: -333  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 10

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.35  
Tolerance mm : ± 0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 7.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150  
guide sleeve  
travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.20  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 750  
guide sleeve  
travel mm : 5.70  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1400  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1280

Rack travel in mm : 12.30  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150  
Aneroid pressure  
hPa : 1300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 12.30  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1450

##### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. : > 8.90

#### Testing:

Rated speed rpm : 250  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 460  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 500  
rack travel mm : 6.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 470  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 100  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.05

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 200

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 220

#### FUEL DELIVERY CHARACTERISTICS

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100



rack travel mm : 19.30  
Tolerance mm :  $\pm$  1.70  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

---

#### LOW IDLE

Delivery for standard plunger/barrel assemblies.

Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 250

Rack travel in mm : 7.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.04.97  
Test oil : ISO 4113

Combination No. : 0 402 899 301

Injection pump  
Pump designation : PE10P120A520LS8523  
EP type number : 0 412 829 202

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 040

Cust. part No. : 51.11103-7531

## Customer-spec. information

Customer : MAN  
Motor : D 2840 LE 403  
Power kW : 772.0

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 089

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1A- 8-7A- 6- 3A- 5  
: - 2A- 10- 9A- 4

Phasing : 0-27-72-99-144-171  
: -216-243-283-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 10

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 1150  
Uact V : 3.360  
Del. quantity  
cm3/1000 strokes : 332.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000s. : +/- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000s. : 12.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 500  
Uact V : 2.220  
Del. quantity  
cm3/1000 strokes : 180.0  
Tolerance  
cm3/1000 strokes : +/- 5.0  
Check tolerance  
cm3/1000s. : +/- 9.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000s. : 12.0

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Rated speed rpm : 500  
Uact V : 1.940  
Del. quantity  
cm3/1000 strokes : 0.1

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  0.1

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Rated speed rpm : 500  
Uact V : 2.160  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 165.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

#### TEST POINT L1

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 300  
Uact V : 1.600  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.080  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.05.97  
Test oil : ISO 4113  
Combination No. : 9 400 083 449BC  
Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025  
Governor  
Governor design. : RSV400...1100A2C2209  
: R  
Governor no. : 9 420 083 2U1  
Cust. part No. : 3353232-VERSA012

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CT 8.3  
Power KW : 154.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

E01

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
°NW after s.o.d. : 10.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23  
Barrel no. : 1  
Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference °CS : 3.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.25  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 450

Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 90.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.30  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 67.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

### Testing:

Rated speed rpm : 450  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 600  
Tolerance 1/min :  $\pm$  30

### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.25

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 142.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

### LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.05.97  
Test oil : ISO 4113

Combination No. : 9 400 085 339

Injection pump  
Pump designation : PES4A95D410RS2774  
EP type number : 9 400 084 019

Governor  
Governor design. : RQV300...1300AB1066  
: -11L.  
Governor no. : 9 420 080 309

Cust. part No. : 0200742602

Customer-spec. information  
Customer : MBB  
Motor : OM 364 LA  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5



---

Check tolerance cm3/1000S.	:	8.0
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---

Rated speed rpm	:	300
Rack travel in mm	:	7.00
Tolerance mm	:	± 0.10
Del. quantity cm3/1000 strokes	:	9.5
Tolerance cm3/1000 strokes	:	± 2.0
Check tolerance cm3/1000S.	:	± 4.5
Spread Tolerance cm3/1000 strokes	:	5.5
Check tolerance cm3/1000S.	:	9.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1000
guide sleeve travel mm	:	5.75
Tolerance mm	:	± 0.25

Rated speed rpm	:	1350
guide sleeve travel mm	:	8.20
Tolerance mm	:	± 0.10

Rated speed rpm	:	300
guide sleeve travel mm	:	1.05
Tolerance mm	:	± 0.25

Rated speed rpm	:	700
guide sleeve travel mm	:	4.25
Tolerance mm	:	± 0.25

Rated speed rpm	:	1450
guide sleeve travel mm	:	9.15
Tolerance mm	:	± 0.25

---

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
----------------------------------	---	-----

Rated speed rpm	:	1395
Rack travel in mm	:	16.50
Tolerance mm	:	± 1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1300
Aneroid pressure hPa	:	800
Del. quantity cm3/1000 strokes	:	103.0
Tolerance cm3/1000 strokes	:	± 1.0
Check tolerance cm3/1000S.	:	± 3.0
Spread Tolerance cm3/1000 strokes	:	3.5
Check tolerance cm3/1000S.	:	8.0

---

CONTROL LEVER

control lever position degree	:	63.0
tolerance degree	:	± 4.0

control lever position degree	:	112.0
tolerance degree	:	± 4.0

RATED SPEED rack travel mm	:	10.50
Rated speed rpm	:	1360
Tolerance 1/min	:	± 5

rack travel mm	:	4.00
Rated speed rpm	:	1475
Tolerance 1/min	:	± 15

rack travel mm	:	0.50
Tolerance mm	:	± 0.50
Rated speed rpm	:	1630

---

LOW IDLE

control lever position degree	:	68.0
tolerance degree	:	± 4.0

control lever position degree	:	20.0
----------------------------------	---	------

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  9.00

Testing:

Rated speed rpm : 300  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 525

---

#### TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 500  
rack travel mm : 1.80  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 380  
rack travel mm : 0.75  
Tolerance mm :  $\pm$  0.10

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  250

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  270

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 800  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.05.97  
Test oil : ISO 4113

Combination No. : 0 402 076 796

Injection pump  
Pump designation : PES6P120A720RS3352  
EP type number : 0 412 026 780

Governor  
Governor design. : RSV400...1000P2A638  
Governor no. : 0 421 833 547

Cust. part No. : RE66421

Customer-spec. information  
Customer : DEERE  
Motor : 6081HDW03  
Power KW : 123.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery mark

°NW after s.o.d. : 7.75  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.00  
Tolerance mm : +- 0.05

Del. quantity  
cm3/1000 strokes : 121.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Spread

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.60  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 23.5

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 5.0

Spread

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 3.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure

hPa : -

Del. quantity  
cm3/1000 strokes : 121.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 3.0

Spread

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 10.00

Rated speed rpm : 1055

Tolerance 1/min : +- 5

rack travel mm : 4.00

Rated speed rpm : 1115

Tolerance 1/min : +- 5

rack travel mm : 0.85

Tolerance mm : +- 0.55

Rated speed rpm : 1250

rack travel mm : 4.00

Rated speed rpm : 1120

Tolerance 1/min : +- 15

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.10

Tolerance mm : +- 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.10

Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 139.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.04.97  
Test oil : ISO 4113

Combination No. : 0 402 736 907

Injection pump  
Pump designation : PES6P120A720RS7351  
EP type number : 0 412 726 922

Governor  
Governor design. : RQV450...1100PA1334K  
Governor no. : 0 421 815 549

Cust. part No. : 3931940

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-A  
Power KW : 224.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.03  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.25  
Tolerance mm : ± 0.05

Del. quantity	
cm <sup>3</sup> /1000 strokes	: 227.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 4.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 450
Rack travel in mm	: 6.40
Tolerance mm	: +- 0.20
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 32.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 3.0
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 5.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1162
guide sleeve	
travel mm	: 7.49
Tolerance mm	: +- 0.15
Rated speed rpm	: 450
guide sleeve	
travel mm	: 1.33
Tolerance mm	: +- 0.20
Rated speed rpm	: 860
guide sleeve	
travel mm	: 4.55
Tolerance mm	: +- 0.25
Rated speed rpm	: 1560

guide sleeve	
travel mm	: 13.50
Tolerance mm	: +- 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: 1600
Del. quantity	
cm <sup>3</sup> /1000 strokes	: 227.0
Tolerance	
cm <sup>3</sup> /1000 strokes	: +- 1.0
Check tolerance	
cm <sup>3</sup> /1000S.	: +- 4.0
Speed	
Tolerance	
cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance	
cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever	
position degree	: 117.0
tolerance degree	: +- 4.0

##### RATED SPEED

rack travel mm	: 13.20
Rated speed rpm	: 1170
Tolerance 1/min	: +- 15
rack travel mm	: 8.00
Rated speed rpm	: 1250
Tolerance 1/min	: +- 15
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1350

##### LOW IDLE

control lever	
position degree	: 79.0
tolerance degree	: +- 4.0

Control lever difference	
Grad	: 38.0
tolerance degree	: +- 6.0

Setting point w/out bumper spring

Rated speed rpm	: 375
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CRT mm min. : > 7.70

#### Testing:

Rated speed rpm : 450  
rack travel mm : 6.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 525

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 900

Rated speed rpm : 1000  
Pressure hPa : -  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 400  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 300  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.20

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 390

Check  
speed 1/min : > 80

Check  
speed 1/min : < 400

#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : 1600  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 218.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### Aneroid pressure

hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 156.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

#### LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.04.97  
Test oil : ISO 4113  
Combination No. : 0 403 466 170  
Injection pump  
Pump designation : PES6MW100/120RS1242  
EP type number : 0 413 406 241  
Governor  
Governor design. : RSV550...1100MW5A386  
Governor no. : 0 420 085 271

Cust. part No. : 3929170

Customer-spec. information  
Customer : CDC  
Motor : 6 CTA  
Power KW : 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack  
travel : 15.00  
Difference °CS : 1.50

---

## BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 550

Rack travel in mm : 5.05  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.50

---

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

### CONTROL LEVER

control lever  
position degree : 99.0  
tolerance degree :  $\pm$  4.0

### RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  5

rack travel mm : 8.00  
Rated speed rpm : 1205  
Tolerance 1/min :  $\pm$  5

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1300

rack travel mm : 8.00  
Rated speed rpm : 1205  
Tolerance 1/min :  $\pm$  15

---

### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 24.0

tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 550  
rack travel mm : 4.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

Testing:

Rated speed rpm : 550  
rack travel mm : 5.05  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 550  
Rack travel in mm : 5.05  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.04.97  
Test oil : ISO 4113

Combination No. : 0 403 466 171

Injection pump  
Pump designation : PES6MW100/120RS1242  
EP type number : 0 413 406 241

Governor  
Governor design. : RSV550...1100MW5A387  
Governor no. : 0 420 085 272

Cust. part No. : 3930453

## Customer-spec. information

Customer : CDC  
Motor : 6 CTA  
Power KW : 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery differende

and maximum rack  
travel : 15.00  
Difference ° CS : 1.50

---

### BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 550

Rack travel in mm : 5.05  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

#### CONTROL LEVER

control lever  
position degree : 104.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5

rack travel mm : 8.00  
Rated speed rpm : 1235  
Tolerance 1/min :  $\pm$  5

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1350

rack travel mm : 8.00  
Rated speed rpm : 1235  
Tolerance 1/min :  $\pm$  15

---

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 25.0



tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 550  
rack travel mm : 4.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

Testing:

Rated speed rpm : 550  
rack travel mm : 5.05  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 900  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

LOW IDLE

Rated speed rpm : 550  
Rack travel in mm : 5.05  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000s. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.04.97  
Test oil : ISO 4113

Combination No. : 0 403 466 177

Injection pump  
Pump designation : PES6MW100/120RS1242  
EP type number : 0 413 406 241

Governor  
Governor design. : RSV550...1100MW5A397  
Governor no. : 0 420 085 286

Cust. part No. : 3931283

## Customer-spec. information

Customer : CDC  
Motor : 6 CTA  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

and maximum rack  
travel : 15.00  
Difference ° CS : 1.50

---

# BASIC SETTING

Rated speed rpm : 1100

---

Rack travel in mm : 12.80  
Tolerance mm : + 0.05

---

Del. quantity  
cm3/1000 strokes : 158.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Speed

---

Tolerance  
cm3/1000 strokes : 4.0

---

Check tolerance  
cm3/1000S. : 7.5

---

Rated speed rpm : 550

---

Rack travel in mm : 5.05  
Tolerance mm : + 0.10

---

Del. quantity  
cm3/1000 strokes : 23.0

---

Tolerance  
cm3/1000 strokes : + 2.0

---

Check tolerance  
cm3/1000S. : + 4.5

---

Speed

---

Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 5.5

---

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

---

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

---

governor spring  
pre-tension  
click setting x : 3.25

---

---

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure

---

hPa : 1200  
Del. quantity

---

cm3/1000 strokes : 158.0  
Tolerance

---

cm3/1000 strokes : + 1.0  
Check tolerance

---

cm3/1000S. : + 4.0  
Speed

---

Tolerance  
cm3/1000 strokes : 4.0

---

Check tolerance  
cm3/1000S. : 7.5

---

---

### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree : + 4.0

---

### RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1180  
Tolerance 1/min : + 5

---

rack travel mm : 6.00  
Rated speed rpm : 1235  
Tolerance 1/min : + 5

---

rack travel mm : 1.00  
Tolerance mm : + 0.70  
Rated speed rpm : 1300

---

rack travel mm : 6.00  
Rated speed rpm : 1235  
Tolerance 1/min : + 15

---

---

### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree : + 4.0

---

Control lever difference  
Grad : 23.0

---

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 550  
rack travel mm : 4.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

Testing:

Rated speed rpm : 550  
rack travel mm : 5.05  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 830  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 550  
  
Rack travel in mm : 5.05  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.04.97  
Test oil : ISO 4113  
  
Combination No. : F 002 A0Z 026  
  
Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214  
  
Governor  
Governor design. : RSV475...1250A0C904R  
Governor no. : F 002 A20 220

Cust. part No. : 3930148

Customer-spec. information  
Customer : CDC  
Motor : 4BT3.9  
Power KW : 63.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

°NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0

Tolerance	
cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: +- 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm3/1000 strokes	: 3.5
<hr/>	
Check tolerance	
cm3/1000S.	: 6.0
<hr/>	

Rated speed rpm : 475

Rack travel in mm	: 5.50
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 20.5
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000S.	: +- 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure	
hPa	: -
Del. quantity	
cm3/1000 strokes	: 85.0

Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 3.0
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 6.0

#### CONTROL LEVER

control lever	
position degree	: 112.0
tolerance degree	: +- 4.0

#### RATED SPEED

rack travel mm	: 9.30
Rated speed rpm	: 1305
Tolerance 1/min	: +- 10

rack travel mm	: 6.30
Rated speed rpm	: 1355
Tolerance 1/min	: +- 5

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1475

rack travel mm	: 6.30
Rated speed rpm	: 1355
Tolerance 1/min	: +- 15

#### LOW IDLE

control lever	
position degree	: 90.0
tolerance degree	: +- 4.0

Control Lever difference	
Grad	: 22.0
tolerance degree	: +- 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.00
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
CRT mm min.	: > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.05.97  
Test oil : ISO 4113

Combination No. : 0 401 430 015

Injection pump  
Pump designation : PE12R120/520/6RS1510  
EP type number : 0 411 420 002

Governor  
Governor design. : RQV300...1150R7K  
Governor no. : 0 421 415 007

Cust. part No. : 1 227 6584

Customer-spec. information  
Customer : MWM  
Motor : TBD 616

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.95  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 0.50

Firing order : 1- 2- 9-10- 5- 6  
: - 11- 12- 3- 4  
: - 7- 8

Phasing : 0-30-60-90-120-150  
: -180-210-240-270  
: -300-330  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.40  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 387.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 300

Rack travel in mm : 4.80

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1215  
guide sleeve

travel mm : 9.95

Tolerance mm : ± 0.15

Rated speed rpm : 300

guide sleeve

travel mm : 0.93

Tolerance mm : ± 0.20

Rated speed rpm : 790

guide sleeve

travel mm : 4.81

Tolerance mm : ± 0.25

Rated speed rpm : 1430

guide sleeve

travel mm : 13.50

F02

Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1330

Rack travel in mm : 9.00

Tolerance mm : ± 1.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure

hPa : 1500

Del. quantity

cm<sup>3</sup>/1000 strokes : 387.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever

position degree : 121.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.40

Rated speed rpm : 1195

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1295

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1400

##### LOW IDLE

control lever

position degree : 71.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  6.30

Testing:

Rated speed rpm : 300

rack travel mm : 4.80

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 370

---

#### TORQUE CONTROL

Rated speed rpm : 1150

rack travel mm : 14.40

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750

rack travel mm : 11.90

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 400

rack travel mm : 10.30

Tolerance mm :  $\pm$  0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1150

Pressure hPa : 1500

rack travel mm : 14.40

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150

Pressure hPa : -

rack travel mm : 7.90

Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 900

rack travel mm : 13.60

Tolerance mm :  $\pm$  0.20

Pressure hPa : 310

rack travel mm : 9.00

Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100

Rated speed rpm :  $<$  250

Check  
speed 1/min :  $>$  80

Check  
speed 1/min :  $<$  270

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1500

Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 317.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

##### Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

---

#### LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.05.97

Test oil : ISO 4113

Combination No. : 0 402 076 795

## Injection pump

Pump designation : PES6P120A720RS3369

EP type number : 0 412 026 789

## Governor

Governer design. : RSV450...1075P5A631

Governer no. : 0 421 833 538

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FIAT

Motor : 8365.26.584

Power KW : 144.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Test nozzle holde  
assembly

: 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1075

Rack travel in mm : 10.75

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 136.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000s. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 5.90

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1075  
Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 9.60

Rated speed rpm : 1150

Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1195

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1400

rack travel mm : 4.00

Rated speed rpm : 1235

Tolerance 1/min : ± 15

Check  
speed 1/min : ± 20

#### LOW IDLE

control lever  
position degree : 88.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 5.40

Tolerance mm : ± 0.10

#### Testing:

Rated speed rpm : 450

rack travel mm : 5.90

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 650

Tolerance 1/min : ± 50

#### TORQUE CONTROL

Rated speed rpm : 1075  
rack travel mm : 10.75  
Tolerance mm : +- 0.05

Rated speed rpm : 700  
rack travel mm : 10.80  
Tolerance mm : +- 0.10

Rated speed rpm : 320  
rack travel mm : 11.30  
Tolerance mm : +- 0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 10.75  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.60  
Tolerance mm : +- 0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 515  
rack travel mm : 10.35  
Tolerance mm : +- 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 137.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 85.0  
Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.60  
Tolerance mm : +- 0.30  
Del. quantity  
cm3/1000 strokes : 95.0  
Tolerance  
cm3/1000 strokes : +- 15.0  
Check tolerance  
cm3/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 5.90  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 25.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.05.97  
Test oil : ISO 4113

Combination No. : 0 402 076 797

Injection pump  
Pump designation : PES6P120A720RS3378  
EP type number : 0 412 026 799

Governor  
Governor design. : RSV450...1000P5A637  
Governor no. : 0 421 833 548

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8365.26.541  
Power KW : 129.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 240  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.20  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(E) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 5.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

F09

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 8.00

Rated speed rpm : 1070  
Tolerance 1/min : +- 5

Check  
speed 1/min : +- 10

rack travel mm : 4.00  
Rated speed rpm : 1115

Tolerance 1/min : +- 15  
Check  
speed 1/min : +- 20

rack travel mm : 0.85  
Tolerance mm : +- 0.55

Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1125

Tolerance 1/min : +- 15  
Check  
speed 1/min : +- 20

#### LOW IDLE

control lever  
position degree : 93.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 3.70  
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 450  
rack travel mm : 4.20  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 560  
Tolerance 1/min : +- 50

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 9.00  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
rack travel mm : 9.05  
Tolerance mm : +- 0.10

Rated speed rpm : 330  
rack travel mm : 9.60  
Tolerance mm : +- 0.20

---

#### FUEL DELIVERY CHARACTERISTICS

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 96.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 110.0  
Tolerance  
cm3/1000 strokes : +- 15.0  
Check tolerance  
cm3/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 4.20  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 20.0  
Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.05.97  
Test oil : ISO 4113

Combination No. : 0 402 076 798

Injection pump  
Pump designation : PES6P120A720RS3371  
EP type number : 0 412 026 791

Governor  
Governor design. : RSV450...1000PSA637  
: -1  
Governor no. : 0 421 833 549

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FIAT  
Motor : 8365.26.540  
Power KW : 136.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 230  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 450

Rack travel in mm : 4.60

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 3.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 8.50  
Rated speed rpm : 1070  
Tolerance 1/min : + 5  
Check  
speed 1/min : + 10

rack travel mm : 4.00  
Rated speed rpm : 1110  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1120  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

#### LOW IDLE

control lever  
position degree : 88.0  
tolerance degree : + 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.10  
Tolerance mm : + 0.10

#### Testing:

Rated speed rpm : 450  
rack travel mm : 4.60  
Tolerance mm : + 0.10  
rack travel mm : 2.00

Rated speed rpm : 580  
Tolerance 1/min : +- 50

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 9.55  
Tolerance mm : +- 0.05

Rated speed rpm : 700  
rack travel mm : 9.60  
Tolerance mm : +- 0.10

Rated speed rpm : 320  
rack travel mm : 10.20  
Tolerance mm : +- 0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 9.55  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm : +- 0.15

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 425  
rack travel mm : 9.35  
Tolerance mm : +- 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 122.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

---

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 88.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.10  
Tolerance mm : +- 0.30  
Del. quantity  
cm3/1000 strokes : 90.0  
Tolerance  
cm3/1000 strokes : +- 15.0  
Check tolerance  
cm3/1000S. : +- 19.0

---

#### LOW IDLE

Rated speed rpm : 450  
  
Rack travel in mm : 4.60  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 20.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.05.97  
Test oil : ISO 4113

Combination No. : 0 402 076 807

Injection pump  
Pump designation : PES6P120A720RS3378  
EP type number : 0 412 026 799

Governor  
Governor design. : RSV450...1050P5A647  
Governor no. : 0 421 833 564

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FIAT  
Motor : 8365.26.532  
Power KW : 117.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 260  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 8.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : +- 4.0

---

Spreed

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 450

Rack travel in mm : 4.60  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 20.0

Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

Spreed  
Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 2.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 115.0  
Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 113.0

RATED SPEED  
rack travel mm : 7.40  
Rated speed rpm : 1095  
Tolerance 1/min : +- 5  
Check  
speed 1/min : +- 10

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : +- 15  
Check  
speed 1/min : +- 20

---

LOW IDLE

control lever  
position degree : 91.0

Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.10  
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 450  
rack travel mm : 4.60  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min : +- 50

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 8.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 320  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 450  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.05.97  
Test oil : ISO 4113

Combination No. : 0 402 076 808

Injection pump  
Pump designation : PES6P120A720RS3371  
EP type number : 0 412 026 791

Governor  
Governor design. : RSV450...1050P5A649  
Governor no. : 0 421 833 566

Cust. part No. :

## Customer-spec. information

Customer : IVECO-FIAT  
Motor : 8365.26.534  
Power KW : 130.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 034

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 260  
Tolerance l/h : +- 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0

Prestroke mm : 3.55  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10

Rack travel in mm : 10.50  
Tolerance mm : +- 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 9.25  
Tolerance mm : +- 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Spread

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 450

Rack travel in mm : 4.50

Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 20.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spread

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 3.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 126.0  
Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 115.0

RATED SPEED  
rack travel mm : 8.20  
Rated speed rpm : 1075  
Tolerance 1/min : + 5  
Check  
speed 1/min : + 10

rack travel mm : 4.00  
Rated speed rpm : 1110  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1120  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

---

#### LOW IDLE

control lever  
position degree : 94.0

#### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.00  
Tolerance mm : + 0.10

#### Testing:

Rated speed rpm : 450  
rack travel mm : 4.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 580  
Tolerance 1/min : + 30

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 9.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 320  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 450  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 425  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 77.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 450  
  
Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.05.97  
Test oil : ISO 4113

Combination No. : 0 402 610 804

Injection pump  
Pump designation : PE12P120A500/5RS7376  
EP type number : 0 412 620 843

Governor  
Governor design. :  
Governor no. :

Cust. part No. : 1 2277 436

Customer-spec. information  
Customer : MWM  
Motor : TBD 616-V12  
Power KW : 648.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 1- 2- 9-10- 5- 6  
: - 11- 12- 3- 4  
: - 7- 8

Phasing : 0-30-60-90-120-150  
: -180-210-240-270  
: -300-330  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.35  
Tolerance mm : +- 0.05

---

---

LOW IDLE

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.05.97  
Test oil : ISO 4113

Combination No. : 0 402 618 801

Injection pump  
Pump designation : PE8P120A500/5RS7144  
EP type number : 0 412 628 821

Governor  
Governor design. :  
Governor no. :

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TBD234V16

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1-2A- 3- 4A- 7  
: - 8A- 5- 6A

Phasing : 0-30-90-120-135  
: -165-225-255  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### TORQUE CONTROL

Rated speed rpm : 800  
rack travel mm : 14.95  
Tolerance mm : +- 0.05

Rated speed rpm : 1150  
rack travel mm : 14.95  
Tolerance mm : +- 0.10

Rated speed rpm : 1100

rack travel mm : 5.00  
Tolerance mm : +- 0.10

Rated speed rpm : 1100  
rack travel mm : 7.00  
Tolerance mm : +- 0.10

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.1

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 25.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 25.0

##### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.

Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm	:	325
Del. quantity		
cm <sup>3</sup> /1000 strokes	:	35.0
Tolerance		
cm <sup>3</sup> /1000 strokes	: ±	5.0
Speed		
Tolerance		
cm <sup>3</sup> /1000 strokes	:	6.0
Check tolerance		
cm <sup>3</sup> /1000S.	:	10.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.05.97  
Test oil : ISO 4113

Combination No. : 0 402 646 608

Injection pump  
Pump designation : PE6P120A720RS7188  
: -10J  
EP type number : 0 412 626 926

Governor  
Governor design. : RQ200/950PA745-3  
Governor no. : 0 421 801 579

Cust. part No. : 1344920

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11 71

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper  
(RoBo diaphragm) : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 235  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

---

## BASIC SETTING

Rated speed rpm : 700

---

Rack travel in mm : 10.75  
Tolerance mm :  $\pm$  0.05

---

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1006  
guide sleeve  
travel mm : 4.90  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.41  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 930  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 355  
guide sleeve  
travel mm : 2.97  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1045  
guide sleeve  
travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1360  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

### GUIDE SLEEVE POSITION

control lever  
position degree : 104  
Rated speed rpm : 600

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

### CONTROL LEVER

control lever  
position degree : 42.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 96.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 9.70  
Rated speed rpm : 1050  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1135  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1250

---

### LOW IDLE

control lever  
position degree : 62.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 8.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  6.00

Testing:

Rated speed rpm : 250  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 158.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.05.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 676 804  
  
Injection pump  
Pump designation : PE6P120A320RS7142  
EP type number : 0 412 626 820  
  
Governor  
Governor design. : RSUV325...1150POA358  
Governor no. : 0 421 829 105

Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : D-TBD 234 V6

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Freestroke n.m : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1-6A- 3- 2A- 5  
: - 4A

Phasing : 0-90-120-210-240  
: -330  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325

Rack travel in mm : 6.60

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : ± 4.0

control lever  
position degree : 110.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 13.90  
Rated speed rpm : 1195  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1295  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1440

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

control lever  
position degree : 23.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 6.10  
Tolerance mm : ± 0.10

#### Testing:

Rated speed rpm : 325  
rack travel mm : 6.60  
Tolerance mm : ± 0.10  
rack travel mm : 2.00

Rated speed rpm : 470  
Tolerance 1/min : +- 30

---

#### TORQUE CONTROL

Rated speed rpm : 800  
rack travel mm : 14.95  
Tolerance mm : +- 0.05

Rated speed rpm : 1150  
rack travel mm : 14.95  
Tolerance mm : +- 0.10

Rated speed rpm : 1100  
rack travel mm : 5.00  
Tolerance mm : +- 0.10

Rated speed rpm : 1100  
rack travel mm : 7.00  
Tolerance mm : +- 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm : +- 0.10

#### MEASUREMENT

Pressure hPa : 725  
rack travel mm : 14.75  
Tolerance mm : +- 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.1  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 0.1

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 25.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 25.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0

---

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 325  
Rack travel in mm : 6.60

Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.05.97  
Test oil : ISO 4113

Combination No. : 0 402 676 809

Injection pump  
Pump designation : PE6P120A720RS7126  
: -10  
EP type number : 0 412 626 929

Governor  
Governor design. : RSV350...1050P1A543  
: -1  
Governor no. : 0 421 833 325

Cust. part No. : 1305082

Customer-spec. information  
Customer : SCANIA  
Motor : DS11 54,57

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper  
(RoBo diaphragm) : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700



---

Rack travel in mm : 14.15  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 5.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 235.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 62.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 13.10

Rated speed rpm : 1095

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  0

rack travel mm : 4.00

Rated speed rpm : 1180

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 28.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

Testing:

Rated speed rpm : 350  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 450  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 510  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 152.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000s. : 6.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.05.97  
Test oil : ISO 4113

Combination No. : 0 402 678 805

Injection pump  
Pump designation : PE8P120A520/5RS7143  
EP type number : 0 412 628 820

Governor  
Governor design. : RSUV325...1150POA358  
Governor no. : 0 421 829 105

Cust. part No. :

## Customer-spec. information

Customer : MWM  
Motor : TBD234V8

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

G08

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

First stroke mm : 5.25  
Tolerance mm : ± 0.50  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1-8A- 5- 4A- 7  
: - 2A- 3- 6A

Phasing : 0-30-90-120-180  
: -210-270-300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 14.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm3/1000S. : +- 4.0

---

Spreed

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 325

Rack travel in mm : 6.60

Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 35.0

Tolerance  
cm3/1000 strokes : +- 5.0

Check tolerance  
cm3/1000S. : +- 8.0

Spreed

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

governor spring  
pre-tension  
click setting x : 4.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm3/1000 strokes : 261.0  
Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree : +- 4.0

control lever  
position degree : 110.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 13.90  
Rated speed rpm : 1195  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1295  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1440

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : +- 4.0

control lever  
position degree : 23.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 6.10  
Tolerance mm : +- 0.10

Testing:

Rated speed rpm : 325  
rack travel mm : 6.60  
Tolerance mm : +- 0.10

rack travel mm : 2.00

Rated speed rpm : 470  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 800  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : 725  
rack travel mm : 14.75  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  25.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 325  
Rack travel in mm : 6.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 35.0  
Tolerance  
cm3/1000 strokes : ± 5.0  
Check tolerance  
cm3/1000s. : ± 8.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000s. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 05.05.97  
Test oil : ISO 4113  
Combination No. : 0 402 678 806  
Injection pump  
Pump designation : PE8P120A520/5RS7145  
EP type number : 0 412 628 822  
Governor  
Governor design. : RSUV325...1150PUA350  
: -1  
Governor no. : 0 421 829 106  
Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : TBD234V16

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 1 688 901 019  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 075  
Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 5.25  
Tolerance mm : ± 0.50  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1-2A- 3- 4A- 7  
: - 8A- 5- 6A  
Phasing : 0-30-90-120-225  
: -255-315-345  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 800  
Rack travel in mm : 14.95  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0



Tolerance	
cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: +- 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm3/1000 strokes	: 5.0
<hr/>	
Check tolerance	
cm3/1000S.	: 9.0
<hr/>	
Rated speed rpm	: 325
Rack travel in mm	: 6.60
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 35.0
Tolerance	
cm3/1000 strokes	: +- 5.0
Check tolerance	
cm3/1000S.	: +- 8.0
Spreed	
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance	
cm3/1000S.	: 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
governor spring	
pre-tension	
click setting x	: 4.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 800
Aneroid pressure	
hPa	: 900
Del. quantity	
cm3/1000 strokes	: 261.0

Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

---

CONTROL LEVER

control lever	
position degree	: 50.0
tolerance degree	: +- 4.0

control lever	
position degree	: 110.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 13.90
Rated speed rpm	: 1195
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1295
Tolerance 1/min	: +- 15

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1440

---

LOW IDLE

control lever	
position degree	: 73.0
tolerance degree	: +- 4.0

control lever	
position degree	: 23.0
tolerance degree	: +- 4.0

Setting point w/out bumper spring

Rated speed rpm	: 325
rack travel mm	: 6.10
Tolerance mm	: +- 0.10

Testing:

Rated speed rpm	: 325
rack travel mm	: 6.60
Tolerance mm	: +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 470  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 800  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1150  
rack travel mm : 14.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
rack travel mm : 3.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1100  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Pressure hPa : 725  
rack travel mm : 14.75  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 1150  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger

barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

---

Delivery for shutoff assemblies  
(refer to cam sequence).  
Arbitrary delivery for standard plunger  
barrel assemblies.

Aneroid pressure  
hPa : -  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 0.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.1

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Delivery for standard plunger/barrel  
assemblies.  
Zero delivery for shutoff assemblies  
(refer to cam sequence).

Rated speed rpm : 325  
Rack travel in mm : 6.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 35.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.12.96  
Test oil : ISO 4113

Combination No. : 0 402 746 985

Injection pump  
Pump designation : PES6P120A720RS7224  
: -2  
EP type number : 0 412 726 893

Governor  
Governor design. : RQ275/1050PA1021-2  
Governor no. : 0 421 801 676

Cust. part No. :

Customer-spec. information  
Customer : IVECO-UNIC  
Motor : 8460.41.721

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Check  
tolerance °NW : ± 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Rated speed rpm : 275

Rack travel in mm : 5.10  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 23.0  
Tolerance  
cm3/1000 strokes : +- 3.0

Check tolerance  
cm3/1000S. : +- 6.0

Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : +- 0.80

#### RATED SPEED

rack travel mm : 9.80  
Rated speed rpm : 1103  
Tolerance 1/min : +- 8

rack travel mm : 4.00  
Rated speed rpm : 1160  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1350

#### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.60

Testing:

G17

Rated speed rpm : 275  
rack travel mm : 5.10  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 355  
Tolerance 1/min : +- 20

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 10.85  
Tolerance mm : +- 0.05

Rated speed rpm : 550  
rack travel mm : 10.85  
Tolerance mm : +- 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 10.85  
Tolerance mm : +- 0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.60  
Tolerance mm : +- 0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250  
rack travel mm : 8.35  
Tolerance mm : +- 0.10

Pressure hPa : 430  
rack travel mm : 9.95  
Tolerance mm : +- 0.05

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 215

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 235

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 127.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

## STARTING FUEL DELIVERY

---

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  19.0

---

## LOW IDLE

---

Rated speed rpm : 275  
  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.05.97  
Test oil : ISO 4113  
Combination No. : 0 403 466 180  
Injection pump  
Pump designation : PES6MW100/120RS1238  
EP type number : 0 413 406 237  
Governor  
Governor design. : RSV425...1150MW2A407  
Governor no. : 0 420 085 298

Cust. part No. : 3284067

Customer-spec. information  
Customer : CDC  
Motor : 6 CT  
Power KW : 129.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.25

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 9.95  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 119.0

Tolerance	
cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: +- 4.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance	
cm3/1000S.	: 7.5
<hr/>	
Rated speed rpm	: 440
Rack travel in mm	: 5.25
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 24.5
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000S.	: +- 4.5
Spreed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.65
Tolerance mm	: +- 0.35
governor spring	
pre-tension	
click setting x	: 3.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1150
Aneroid pressure	
hPa	: 900
Del. quantity	
cm3/1000 strokes	: 119.0

Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 4.0
Spreed	
Tolerance	
cm3/1000 strokes	: 4.0
Check tolerance	
cm3/1000S.	: 7.5

---

CONTROL LEVER

control lever	
position degree	: 102.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 8.90
Rated speed rpm	: 1200
Tolerance 1/min	: +- 5

rack travel mm	: 4.00
Rated speed rpm	: 1275
Tolerance 1/min	: +- 5

rack travel mm	: 1.00
Tolerance mm	: +- 0.70
Rated speed rpm	: 1400

rack travel mm	: 4.00
Rated speed rpm	: 1275
Tolerance 1/min	: +- 15

---

LOW IDLE

control lever	
position degree	: 81.0
tolerance degree	: +- 4.0

Setting point w/out bumper spring

Rated speed rpm	: 440
rack travel mm	: 4.70
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
-------------	-----------

Testing:

Rated speed rpm	: 440
rack travel mm	: 5.20
Tolerance mm	: +- 0.10



---

#### TORQUE CONTROL

Rated speed rpm : 1150  
rack travel mm : 9.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 550  
rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

#### LOW IDLE

Rated speed rpm : 440  
  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.97  
Test oil : ISO 4113  
Combination No. : 0 402 746 622  
Injection pump  
Pump designation : PES6P120A720RS7424  
EP type number : 0 412 726 964

Governor  
Governor design. : RQV325...900PA944  
: -25K  
Governor no. : 0 421 815 536

Cust. part No. : 3136C5223-P16

Customer-spec. information  
Customer : MACK  
Motor : E7-350  
Power KW : 261.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 413 359 008  
Inlet press. bar : 2.8  
Tolerance bar : ± 0.1  
Test nozzle holde  
assembly : 1 688 901 103  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 008

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 12.00  
Tolerance mm : ± 1.00  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900  
Rack travel in mm : 14.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 319.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 340

Rack travel in mm : 4.80  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 319.5

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree : +- 6.0

#### RATED SPEED

rack travel mm : 13.10  
Rated speed rpm : 945  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1200

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : +- 6.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : > 6.10

Testing:

Rated speed rpm : 340  
rack travel mm : 4.80  
Tolerance mm : +- 0.10

Rated speed rpm : 425

#### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 14.15  
Tolerance mm : +- 0.05

Rated speed rpm : 625  
rack travel mm : 13.60  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
rack travel mm : 12.80  
Tolerance mm : +- 0.40

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 900  
Pressure hPa : 1200

Rated speed rpm : 900  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 900  
Pressure hPa : 810  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 420  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

---

Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  250

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  255

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 625  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 339.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 171.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  30.0

---

LOW IDLE

Rated speed rpm : 340  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.05.97  
Test oil : ISO 4113

Combination No. : 9 400 030 746

Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 037 214

Governor  
Governor design. : RSV475...1250AOC862R  
Governor no. : 9 420 034 720

Cust. part No. : 3930150

Customer-spec. information  
Customer : CDC  
Motor : 4BT3.9  
Power kW : 67.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 95.0

Tolerance	
cm3/1000 strokes	: +- 1.0
<hr/>	
Check tolerance	
cm3/1000S.	: +- 3.0
<hr/>	
Speed	
<hr/>	
Tolerance	
cm3/1000 strokes	: 3.5
<hr/>	
Check tolerance	
cm3/1000S.	: 6.0
<hr/>	
Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 5.50
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 20.5
Tolerance	
cm3/1000 strokes	: +- 2.0
Check tolerance	
cm3/1000S.	: +- 4.5
Speed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: +- 0.20
<hr/>	
governor spring	
pre-tension	
click setting x	: 4.75

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure	
hPa	: 900
Del. quantity	
cm3/1000 strokes	: 95.0

Tolerance	
cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000S.	: +- 3.0
Speed	
Tolerance	
cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000S.	: 6.0

---

CONTROL LEVER

control lever	
position degree	: 106.0
tolerance degree	: +- 4.0

RATED SPEED

rack travel mm	: 10.20
Rated speed rpm	: 1315
Tolerance 1/min	: +- 10

rack travel mm	: 4.70
Rated speed rpm	: 1380
Tolerance 1/min	: +- 5

rack travel mm	: 0.85
Tolerance mm	: +- 0.55
Rated speed rpm	: 1500

rack travel mm	: 4.70
Rated speed rpm	: 1380
Tolerance 1/min	: +- 15

---

LOW IDLE

control lever	
position degree	: 77.0
tolerance degree	: +- 4.0

Control lever difference

Grad	: 29.0
tolerance degree	: +- 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.00
Tolerance mm	: +- 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
-------------	-----------

Testing:

Rated speed rpm : 475  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

---

Rated speed rpm : 750  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 900

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 590  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 490  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -

Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 12.05.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 057

Injection pump  
Pump designation : PES4A95D320/3RS2927  
EP type number : F 002 A10 017

Governor  
Governor design. : RSV475...1250AOC936R  
Governor no. : F 002 A20 241

Cust. part No. : 3930145

## Customer-spec. information

Customer : CDC  
Motor : 4BNA3.9  
Power kW : 59.7

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 9.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 9.90  
Tolerance mm : ± 0.05



Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 87.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 90.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 8.90  
Rated speed rpm : 1315  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1375

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1450

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min :  $\pm$  15

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 20.0  
tolerance degree :  $\pm$  6.0

##### Setting point w/out bumper spring

Rated speed rpm : 475  
rack travel mm : 4.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 475  
  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.97  
Test oil : ISO 4113

Combination No. : 0 402 796 816

Injection pump  
Pump designation : PES6P12DA720/3LS7396  
EP type number : 0 412 726 948

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 035

Cust. part No. : 51.11103-7485

Customer-spec. information  
Customer : MAN  
Motor : D 2866 LF 10  
Power KW : 309.0

## TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.100  
Del. quantity  
cm3/1000 strokes : 285.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000  
Uact V : 3.120  
Del. quantity  
cm3/1000 strokes : 270.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 6.0

Rated speed rpm : 750  
Uact V : 1.470  
Del. quantity  
cm3/1000 strokes : 73.0  
Tolerance  
cm3/1000 strokes : +/- 5.0  
Check tolerance  
cm3/1000S. : +/- 9.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

Rated speed rpm : 500  
Uact V : 1.950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

TEST POINT L1

Rated speed rpm : 325  
Uact V : 1.470  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.080  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.97  
Test oil : ISO 4113  
Combination No. : 0 402 796 825  
Injection pump  
Pump designation : PES6P120A720/3LS7435  
EP type number : 0 412 726 969  
Governor  
Governor design. : RE30  
Governor no. : 0 421 890 042

Cust. part No. : 51.11103-7503

Customer-spec. information  
Customer : MAN  
Motor : D 2866 LUE 602  
Power kW : 300.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

H06

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 13.00  
Tolerance mm : ± 0.50  
Firing order : 6- 2- 4- 1- 5-  
: 3  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 6

(B) POSITIONER TESTING  
Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

# TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

## (C) INJECTION PUMP WITH POSITIONER

### TEST POINT V1

Rated speed rpm : 750  
Uact V : 3.100  
Del. quantity  
cm3/1000 strokes : 285.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

Rated speed rpm : 1000  
Uact V : 3.120  
Del. quantity  
cm3/1000 strokes : 270.0  
Tolerance  
cm3/1000 strokes : +/- 4.0  
Check tolerance  
cm3/1000S. : +/- 6.0

Rated speed rpm : 750  
Uact V : 1.470  
Del. quantity  
cm3/1000 strokes : 73.0  
Tolerance  
cm3/1000 strokes : +/- 5.0  
Check tolerance  
cm3/1000S. : +/- 9.0  
Speed  
Check tolerance  
cm3/1000S. : 12.0

Rated speed rpm : 500

Uact V : 1.950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 118.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 9.0

TEST POINT L1

Rated speed rpm : 325  
Uact V : 1.470  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.080  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.05.97  
Test oil : ISO 4113  
Combination No. : 0 400 846 591  
Injection pump  
Pump designation : PES6A95D410RS2797  
EP type number : 0 410 896 900  
Governor  
Governor design. : PQV300...1400A91065  
: -22L  
Governor no. : 0 420 212 226  
Cust. part No. : 020 074 4902

## Customer-spec. information

Customer : MB-NFZ  
Motor : OM 366  
Power KW : 97.0

## TEST BENCH REQUIREMENTS

Inlet line : 2.3  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 015  
Outside diameter : 6.0

H09

x inside diameter : 1.5  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.15  
Tolerance mm : ± 0.05

Rack travel in mm : 9.00  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1500  
guide sleeve  
travel mm : 8.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.05  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 2.55  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 750  
guide sleeve  
travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1500

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

#### CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 9.10  
Rated speed rpm : 1455  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1555  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1670

---

#### LOW IDLE

H10

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.80

Testing:

Rated speed rpm : 300  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 575

---

#### TORQUE CONTROL

Rated speed rpm : 1400  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 630  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 925  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.15

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 240

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 50.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 630  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 51.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 925  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 57.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  8.0

---

#### LOW IDLE

Rack travel in mm : 9.00  
Tolerance mm :  $\pm$  0.10

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.05.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 050

Injection pump  
Pump designation : PES6A95D320/3RS2916  
EP type number : F 002 A10 010

Governor  
Governor design. : RBV475...1050A00930R  
Governor no. : F 002 A20 236

Cust. part No. : 328 3917

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT  
Power KW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H12

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.25  
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 98.2
Tolerance cm3/1000 strokes	: $\pm$ 1.0
Check tolerance cm3/1000S.	: $\pm$ 3.0
Speed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.0

Rated speed rpm	: 475
Rack travel in mm	: 5.05
Tolerance mm	: $\pm$ 0.10
Del. quantity cm3/1000 strokes	: 18.5
Tolerance cm3/1000 strokes	: $\pm$ 2.0
Check tolerance cm3/1000S.	: $\pm$ 4.5
Speed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: $\pm$ 0.20
governor spring pre-tension click setting x	: 2.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
-----------------	--------

Aneroid pressure hPa	: 900
Del. quantity cm3/1000 strokes	: 98.2
Tolerance cm3/1000 strokes	: $\pm$ 1.0
Check tolerance cm3/1000S.	: $\pm$ 3.0
Speed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.0

#### CONTROL LEVER

control lever position degree	: 100.0
tolerance degree	: $\pm$ 4.0

RATED SPEED	
rack travel mm	: 10.25
Rated speed rpm	: 1115
Tolerance 1/min	: $\pm$ 5

rack travel mm	: 4.50
Rated speed rpm	: 1170
Tolerance 1/min	: $\pm$ 5

rack travel mm	: 0.85
Tolerance mm	: $\pm$ 0.55
Rated speed rpm	: 1275

rack travel mm	: 4.50
Rated speed rpm	: 1170
Tolerance 1/min	: $\pm$ 15

#### LOW IDLE

control lever position degree	: 82.0
tolerance degree	: $\pm$ 4.0

Control lever difference Grad	: 18.0
tolerance degree	: $\pm$ 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.55
Tolerance mm	: $\pm$ 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 5.05  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 550  
Tolerance 1/min :  $\pm$  30

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 650  
Pressure hPa : 900

Rated speed rpm : 650  
Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 650  
Pressure hPa : 650  
rack travel mm : 11.65  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 400  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.2

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure

hPa : -  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.9  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.05  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.05.97  
Test oil : ISO 4113

Combination No. : 0 402 076 728

Injection pump  
Pump designation : PES6P120A720RS3203  
EP type number : 0 412 026 728

Governor  
Governor design. : RSV425...1050P2A489  
: -2  
Governor no. : 0 421 833 291

Cust. part No. : RE32888

Customer-spec. information  
Customer : DEERE  
Motor : 6076 HRW01  
Power KW : 175.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.03  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

\*NW after s.o.d. : 10.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.45  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 425

Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.40  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1250

rack travel mm : 4.00  
Rated speed rpm : 1165

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

##### Testing:

Rated speed rpm : 425  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10



rack travel mm : 2.00  
Rated speed rpm : 640  
Tolerance 1/min : + 30

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.45  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 13.70  
Tolerance mm : + 0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.70  
Tolerance mm : + 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.20  
Tolerance mm : + 0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 815  
rack travel mm : 13.10  
Tolerance mm : + 0.20

Pressure hPa : 725  
rack travel mm : 12.55  
Tolerance mm : + 0.05

##### Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 159.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : + 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 15.0

#### LOW IDLE

Rated speed rpm : 425  
Rack travel in mm : 5.10  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.5  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.02.96  
Test oil : ISO 4113

Combination No. : 0 402 196 707

Injection pump  
Pump designation : PES6P120A720RS3354  
EP type number : 0 412 026 781

Governor  
Governor design. : RE30  
Governor no. : 0 421 890 029

Cust. part No. : RE 62645

Customer-spec. information  
Customer : DEERE  
Motor : 6081HF001  
Power KW : 203.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 17.0

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery mark

\*NW after s.o.d. : 9.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 15.00  
Tolerance mm : ± 0.50  
Difference \* CS : 2.50

## (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min<sup>-1</sup>, Uact = 2.5 V

## TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.35

ENGINE-SPEED SENSOR  
(ALL P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 1100  
Uact V : 2.880  
Del. quantity  
cm3/1000 strokes : 140.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 3.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

#### FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 700  
Uact V : 2.880  
Del. quantity  
cm3/1000 strokes : 141.5  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

Rated speed rpm : 425  
Uact V : 1.610  
Del. quantity  
cm3/1000 strokes : 22.0  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

TEST POINT L1

Rated speed rpm : 425  
Uact V : 1.610  
Tolerance Volt :  $\pm$  0.060  
Check tolerance  
Volt :  $\pm$  0.060

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  13.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.03.96  
Test oil : ISO 4113  
  
Combination No. : 0 402 196 709  
  
Injection pump  
Pump designation : PES6P120A72ORS3354  
EP type number : 0 412 026 781  
  
Governor  
Governor design. : RE30  
Governor no. :

Cust. part No. : RE 67771

Customer-spec. information  
Customer : DEERE  
Motor : 6081HRW06  
Power kW : 149.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 2 417 413 077  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 101  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 015  
  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

Pump-specific values  
in Section (B)  
must be observed!

(A) INJECTION PUMP SETTINGS  
No basic setting.  
Setting of constant delivery  
under Section C.

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery mark

\*NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 15.00  
Tolerance mm : ± 0.50  
Difference ° CS : 2.50

---

### (B) POSITIONER TESTING

Warm-up time: 3 minutes at  
n=600 min-1, Uact = 2.5 V

#### TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1: 0

Setting point  
(P, R and H pump)

Uact V : 3.100  
CRT mm : 13.00  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(P, R and H pump)

Uact V : 1.700  
CRT mm : 6.15  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Setting point  
(M pump)

Uact V : 3.100  
CRT mm : 12.50  
Tolerance mm : +/- 0.05  
Check  
tolerance mm : +/- 0.10

Check value  
(M pump)

Uact V : 1.700  
CRT mm : 5.50  
Tolerance mm : +/- 0.25  
Check  
tolerance mm : +/- 0.30

Stop position

Uact V : Value with  
deenergised adjusting magnet  
and control rod in  
stop position.

CRT mm : 0.75  
Tolerance mm : +/- 0.25  
Check

H22

tolerance mm : +/- 0.35

### ENGINE-SPEED SENSOR

(All P and R pumps not  
H and M pumps)

Test with control rod  
in stop position

Engine speed min-1: 60  
Amplitude V : 1.4  
Tolerance V : +/- 0.6  
Check  
tolerance V : +/- 1.20

Engine speed min-1: 600  
Difference  
Amplitude to  
Amplitude V : max.1.4

---

### (C) INJECTION PUMP WITH POSITIONER

#### TEST POINT V1

Rated speed rpm : 1100  
Uact V : 2.880  
Del. quantity  
cm3/1000 strokes : 140.0  
Tolerance  
cm3/1000 strokes : +/- 1.0  
Check tolerance  
cm3/1000S. : +/- 3.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0  
FUEL DELIVERY CHARACTERISTICS

---

Rated speed rpm : 700  
Uact V : 2.880  
Del. quantity  
cm3/1000 strokes : 141.5  
Tolerance  
cm3/1000 strokes : +/- 3.0  
Check tolerance  
cm3/1000S. : +/- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

Rated speed rpm : 425  
Uact V : 1.610

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### TEST POINT L1

Rated speed rpm : 425  
Uact V : 1.610  
Tolerance Volt : ± 0.060  
Check tolerance  
Volt : ± 0.060

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Uact V : 4.600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 13.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.97  
Test oil : ISO 4113

Combination No. : 9 400 030 732

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1250A0C845R  
Governor no. : 9 420 034 711

Cust. part No. : 3929407

Customer-spec. information  
Customer : CDC  
Motor : 6BT  
Power KW : 97.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.95  
Tolerance mm : ± 0.05



Del. quantity cm <sup>3</sup> /1000 strokes	: 91.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 6.0

Rated speed rpm	: 475
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 18.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 5.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
-----------------	--------

H25

Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 91.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 6.0

#### CONTROL LEVER

control lever position degree	: 117.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 9.90
Rated speed rpm	: 1315
Tolerance 1/min	: ± 5

rack travel mm	: 5.50
Rated speed rpm	: 1370
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1500

rack travel mm	: 5.50
Rated speed rpm	: 1370
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever position degree	: 91.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 26.0
tolerance degree	: ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.60
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 5.10  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.97  
Test oil : ISO 4113

Combination No. : 9 400 030 740

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV425...1200AOC853R  
Governor no. : 9 420 034 719

Cust. part No. : 3929410

Customer-spec. information  
Customer : CDC  
Motor : 6BT  
Power kW : 100.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.05

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 93.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
<hr/>	
Spread	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.0
<hr/>	

Rated speed rpm	: 425
<hr/>	
Rack travel in mm	: 5.20
Tolerance mm	: + 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 18.5
Tolerance cm <sup>3</sup> /1000 strokes	: + 2.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.5
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1200
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 93.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 3.5
Check tolerance cm <sup>3</sup> /1000S.	: 6.0

##### CONTROL LEVER

control lever position degree	: 115.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 10.00
Rated speed rpm	: 1275
Tolerance 1/min	: + 5

rack travel mm	: 6.10
Rated speed rpm	: 1335
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1425

rack travel mm	: 6.10
Rated speed rpm	: 1335
Tolerance 1/min	: + 15

##### LOW IDLE

control lever position degree	: 88.0
tolerance degree	: + 4.0

Control lever difference	
Grad	: 27.0
tolerance degree	: + 6.0

##### Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 4.70
Tolerance mm	: + 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1200  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800  
rack travel mm : 10.55

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 425  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 028

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV45D...1100A0C905R  
Governor no. : F 002 A20 219

Cust. part No. : 3931398

Customer-spec. information  
Customer : CDC  
Motor : 6BT  
Power KW : 72.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 8.95

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 68.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 450

Rack travel in mm : 5.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 68.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 7.90

Rated speed rpm : 1175

Tolerance 1/min :  $\pm$  5

rack travel mm : 5.20

Rated speed rpm : 1225

Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1500

rack travel mm : 5.20

Rated speed rpm : 1230

Tolerance 1/min :  $\pm$  15

##### LOW IDLE

control lever  
position degree : 93.0  
tolerance degree :  $\pm$  4.0

##### Control lever difference

Grad : 19.0

tolerance degree :  $\pm$  6.0

##### Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 5.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 8.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 850

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 800  
Pressure hPa : -

MEASUREMENT

Pressure hPa : 800  
rack travel mm : 8.45  
Tolerance mm :  $\pm$  0.30

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.05.97  
Test oil : ISO 4113

Combination No. : 0 400 074 885

Injection pump  
Pump designation : PES4M55C320RS167  
EP type number : 0 410 054 960

Governor  
Governor design. : R3F400/2000M56-14  
Governor no. : 0 420 021 271

Cust. part No. :

Customer-spec. information  
Customer : DPICO  
Motor : OM601-2.3l (Exp)  
Power KW : 58.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 15.50  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000s. : ± 1.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Rated speed rpm : 400

Rack travel in mm : 5.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 6.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.25

Tolerance mm : ± 0.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Ref. pressure

ALDA / ADA hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

##### RATED SPEED

control lever  
position degree : 50.0

Rated speed rpm : 2250

rack travel mm : 7.40

Tolerance mm : ± 0.25

Rated speed rpm : 2550

rack travel mm : 0.50

Tolerance mm : ± 0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000

CRT mm max. : 1.45

##### LOW IDLE

control lever  
position degree : 14.0  
tolerance degree : ± 2.0

Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.00

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 3.40

Tolerance mm : ± 0.10

##### Load pick-up

Rated speed rpm : 250

rack travel mm : 12.50

Rated speed rpm : 1000

CRT mm max. : 1.45

rack travel mm : 5.00

Rated speed rpm : 400

##### TORQUE CONTROL

Rated speed rpm : 1000

rack travel mm : 12.15

Tolerance mm : ± 0.05

Rated speed rpm : 1800

rack travel mm : 11.90

Tolerance mm : ± 0.10

Rated speed rpm : 2000

rack travel mm : 11.80

Tolerance mm : ± 0.10

##### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 1000

Ref. pressure  
ALDA / ADA hPa : 940  
rack travel mm : -0.10  
Tolerance mm : +- 0.10

#### MEASUREMENT

Rated speed rpm : 1000  
Ref. pressure  
ALDA / ADA hPa : 900  
rack travel mm : -0.40  
Tolerance mm : +- 0.10

Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -1.50  
Tolerance mm : +- 0.20

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 1800  
Del. quantity  
cm3/1000 strokes : 40.8  
Tolerance  
cm3/1000 strokes : +- 0.8  
Check tolerance  
cm3/1000S. : +- 1.8  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2000  
Spreed  
Del. quantity  
cm3/1000 strokes : 41.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 2.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 2250

rack travel mm : 7.40  
Tolerance mm : +- 0.25  
Del. quantity  
cm3/1000 strokes : 24.5  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 3.0  
Spreed  
Tolerance  
cm3/1000 strokes : 2.5  
Check tolerance  
cm3/1000S. : 3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.60  
Tolerance mm : +- 1.50  
Del. quantity  
cm3/1000 strokes : 59.0  
Tolerance  
cm3/1000 strokes : +- 4.0  
Check tolerance  
cm3/1000S. : +- 5.0  
Spreed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 6.0

#### LOW IDLE

Rated speed rpm : 400  
Del. quantity  
cm3/1000 strokes : 7.8  
Check tolerance  
cm3/1000S. : +- 2.3  
Spreed  
Check tolerance  
cm3/1000S. : 1.5

control lever  
position degree : > 47.00

control lever  
position degree : < 44.50

---

SETTING PNEUMATIC FAST IDLE (PLA)  
(PLA) POSITION

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  2.0

Rated speed rpm : 425

Rack travel in mm : 9.10  
Tolerance mm :  $\pm$  0.80

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.5

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Vacuum hPa : 400.0

---

TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 400  
Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.05.97  
Test oil : ISO 4113  
Combination No. : 0 400 075 918  
Injection pump  
Pump designation : PES5M55C320RS191  
EP type number : 0 410 055 951  
Governor  
Governor design. : RSF385/2000M88  
Governor no. : 0 420 021 293

Cust. part No. :

Customer-spec. information  
Customer : DPICO  
Motor : OM662-D29LA  
Power KW : 88.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 469 990 351  
Inlet press. bar : 1.0  
Test nozzle holder  
assembly : 1 688 901 111  
Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

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## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 1.75  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 21.00  
Tolerance mm : ± 1.00  
Firing order : 1- 2- 4- 5- 3

Phasing : 0-72-144-216-288

Start of delivery blocking

°NW after s.o.d. : 16.50  
Tolerance : ± 0.20  
Check  
tolerance °NW : ± 0.30  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000  
Rack travel in mm : 13.75  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 53.1  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0  
 Rated speed rpm : 385  
 Rack travel in mm : 5.70  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 8.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 5.50  
 Tolerance mm :  $\pm$  0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : 1600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 53.1  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

##### RATED SPEED

control lever  
 position degree : 50.0  
 Rated speed rpm : 2250  
 rack travel mm : 8.75  
 Tolerance mm :  $\pm$  0.20  
 Rated speed rpm : 2600  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.60

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 1000  
 CRT mm max. : 1.85

##### LOW IDLE

control lever  
 position degree : 11.0

Setting point w/out bumper spring  
 Rated speed rpm : 385  
 rack travel mm : 5.70

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500  
 rack travel mm : 3.90  
 Tolerance mm :  $\pm$  0.10

##### Load pick-up

Rated speed rpm : 200  
 rack travel mm : 12.50

Rated speed rpm : 1000  
 CRT mm max. : 1.85  
 rack travel mm : 5.70  
 Rated speed rpm : 385

##### TORQUE CONTROL

Rated speed rpm : 1000  
 rack travel mm : 13.75  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1700  
 rack travel mm : 13.45  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 2000  
 rack travel mm : 12.95  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
 rack travel mm : 11.80  
 Tolerance mm :  $\pm$  0.10

##### ADJUSTMENT TEST ADA/ALDA

## SETTING

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : 1400  
 rack travel mm : 0.25  
 Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 1000  
 Ref. pressure  
 ALDA / ADA hPa : 1100  
 rack travel mm : 1.95  
 Tolerance mm :  $\pm$  0.10

Ref. pressure  
 ALDA / ADA hPa : 750  
 rack travel mm : 3.90  
 Tolerance mm :  $\pm$  0.20

## FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
 ALDA / ADA hPa : 1600  
 Rated speed rpm : 1700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 53.8  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.8  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.8  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : 1600  
 Rated speed rpm : 2000  
 Spreed  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 52.1  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 1000

Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.2  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

Ref. pressure  
 ALDA / ADA hPa : 1100  
 Rated speed rpm : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 43.2  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  1.5  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

## HIGH IDLE

Ref. pressure  
 ALDA / ADA hPa : 1600  
 Rated speed rpm : 2250  
 rack travel mm : 8.75  
 Tolerance mm :  $\pm$  0.20  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 32.9  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  3.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 2.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 3.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
 rack travel mm : 21.50  
 Tolerance mm :  $\pm$  1.50  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 59.8  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

End of test specification sheet

---

#### LOW IDLE

Rated speed rpm : 385  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 9.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.3  
Speed  
Check tolerance  
cm<sup>3</sup>/1000S. : 1.5

---

control lever  
position degree : > 45.00

control lever  
position degree : < 42.50

---

#### SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION

control lever  
position degree : 11.0

Rated speed rpm : 400

Rack travel in mm : 8.85  
Tolerance mm :  $\pm$  0.80  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.3  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Vacuum hPa : 400.0

---

#### TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 385  
Vacuum hPa : -450.0



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.05.97  
Test oil : ISO 4113

Combination No. : 0 402 046 862

Injection pump  
Pump designation : PES6P120A320RS3337  
EP type number : 0 412 026 770

Governor  
Governor design. : RQV300...1250PA1149K  
Governor no. : 0 421 815 416

Cust. part No. : CCEP 5141A 66-218

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 06-02-26 V4  
Power KW : 133.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.10  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.18  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 10.50  
Difference ° CS : 2.00

## CRT ZERO POSITION

Rack travel in mm : 11.20  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 1250

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -6.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1346  
guide sleeve  
travel mm : 10.55  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.31

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 905  
guide sleeve  
travel mm : 6.54  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 381  
guide sleeve  
travel mm : 2.38  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 431  
guide sleeve  
travel mm : 2.98  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 3.77  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1580  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1380

Rack travel in mm : 10.50  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 297.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1325  
Tolerance 1/min :  $\pm$  15

rack travel mm : -7.20  
Rated speed rpm : 1420  
Tolerance 1/min :  $\pm$  5

rack travel mm : -10.70  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1550

---

#### LOW IDLE

control lever  
position degree : 244.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $<$  -5.20

Testing:

Rated speed rpm : 300  
rack travel mm : -6.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850  
rack travel mm : -1.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
rack travel mm : -1.60  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

---

#### SETTING

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Rated speed rpm : 1250  
Pressure hPa : 1000

Rated speed rpm : 1250  
Pressure hPa : -  
rack travel mm : -1.90  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 160  
rack travel mm : -1.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 280  
rack travel mm : -0.25  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  175  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $>$  155  
Check  
speed 1/min :  $<$  260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 850  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 1250  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 108.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : -6.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.05.97  
Test oil : ISO 4113

Combination No. : 0 402 046 864

Injection pump  
Pump designation : PES6P120A320RS3337  
: -1  
EP type number : 0 412 026 772

Governor  
Governor design. : RQV300...1250PA1149  
: -1K  
Governor no. : 0 421 815 421

Cust. part No. : CCEP 5142B 66-219

## Customer-spec. information

Customer : RENAULT V.I.  
Motor : MIDR 06-02-26 W4  
Power KW : 155.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : -0.35  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 13.00

Difference \* CS : 2.00

---

CRT ZERO POSITION

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

BASIC SETTING

Rated speed rpm : 1250

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -8.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1328  
guide sleeve  
travel mm : 9.98

Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.31  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 876  
guide sleeve  
travel mm : 6.02  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 510  
guide sleeve  
travel mm : 3.59  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1600  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1415

Rack travel in mm : 12.15  
Tolerance mm :  $\pm$  2.03

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree :  $\pm$  4.0

---

RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1312  
Tolerance 1/min : +- 15

rack travel mm : -8.80  
Rated speed rpm : 1440  
Tolerance 1/min : +- 5

rack travel mm : -12.30  
Tolerance mm : +- 0.50  
Rated speed rpm : 1550

---

#### LOW IDLE

control lever  
position degree : 245.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : < -7.50

#### Testing:

Rated speed rpm : 300  
rack travel mm : -8.30  
Tolerance mm : +- 0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850  
rack travel mm : -1.75  
Tolerance mm : +- 0.05

Rated speed rpm : 350  
rack travel mm : -1.50  
Tolerance mm : +- 0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1000  
rack travel mm : -1.40

Rated speed rpm : 1000

Pressure hPa : -  
rack travel mm : -3.75  
Tolerance mm : +- 0.20

#### MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 160  
rack travel mm : -3.10  
Tolerance mm : +- 0.15

Pressure hPa : 280  
rack travel mm : -2.05  
Tolerance mm : +- 0.05

---

#### Start interlock

Rated speed rpm : > 175  
Rated speed rpm : < 240

Check  
speed 1/min : > 155  
Check  
speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1000  
Rated speed rpm : 850  
Del. quantity  
cm3/1000 strokes : 139.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm3/1000 strokes : 118.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 102.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : -8.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.05.97  
Test oil : ISO 4113

Combination No. : 0 402 646 670

Injection pump  
Pump designation : PE6P120A32ORS7438  
EP type number : 0 412 626 965

Governor  
Governor design. : RQV275...1150PA1296K  
Governor no. : 0 421 815 523

Cust. part No. : 1316183

## Customer-spec. information

Customer : DAF  
Motor : PF 235 M  
Power Kw : 230.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 13.50  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 259.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.00

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1201  
guide sleeve  
travel mm : 10.07  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 811  
guide sleeve  
travel mm : 6.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450

guide sleeve  
travel mm : 3.85  
Tolerance mm :  $\pm$  6.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1321

Rack travel in mm : 12.25  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 259.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 12.30  
Rated speed rpm : 1215  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1340  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.70

Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  7.60

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 395

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1130  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 875  
Pressure hPa : 1500  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 875  
Pressure hPa : -  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 875  
Pressure hPa : 390  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 130  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1130  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.05.97  
Test oil : ISO 4113

Combination No. : 0 402 646 671

Injection pump  
Pump designation : PE6P120A320RS7421  
EP type number : 0 412 626 956

Governor  
Governor design. : RQV275...1150PA1297K  
Governor no. : 0 421 815 524

Cust. part No. : 1316184/1

Customer-spec. information  
Customer : DAF  
Motor : PF 205 M  
Power kW : 205.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.35  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 231.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 4.90

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 16.0

Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1206  
guide sleeve  
travel mm : 10.12  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 813  
guide sleeve  
travel mm : 6.81  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450

guide sleeve  
travel mm : 3.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1329

Rack travel in mm : 11.10  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm3/1000 strokes : 231.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.10  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20  
rack travel mm : 0.70

Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1400

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  7.50

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 850  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1130  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 875  
Pressure hPa : 1500  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 875  
Pressure hPa : -  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 420  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 150  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1130  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.05.97  
Test oil : ISO 4113

Combination No. : 0 402 646 672

Injection pump  
Pump designation : PE6P120A320RS7421  
EP type number : 0 412 626 956

Governor  
Governor design. : RQV275...1150PA1298K  
Governor no. : 0 421 815 525

Cust. part No. : 1316185/1

Customer-spec. information  
Customer : DAF  
Motor : PF 183 M  
Power KW : 183.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.05  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 4.90

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200  
guide sleeve  
travel mm : 10.06  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 811  
guide sleeve  
travel mm : 6.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450

guide sleeve  
travel mm : 3.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1480  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1343

Rack travel in mm : 9.80  
Tolerance mm :  $\pm$  2.70

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.80  
Rated speed rpm : 1190

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1285

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.70

Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1450

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > 7.50

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 350  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1130  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1150  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 875  
Pressure hPa : 1500  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 875  
Pressure hPa : -  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 875

Pressure hPa : 350  
rack travel mm : 10.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 130  
rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1130  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.04.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 926  
  
Injection pump  
Pump designation : PE8P120A320LS7840  
EP type number : 0 412 628 850  
  
Governor  
Governor design. : RQ300/1050PA972-11  
Governor no. : 0 421 801 739

Cust. part No. : 0220747002

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 A  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

K05

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.60  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 6.50  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1104  
guide sleeve  
travel mm : 6.37  
Tolerance mm : +- 0.10

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.85  
Tolerance mm : +- 0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : +- 0.10

Rated speed rpm : 402  
guide sleeve  
travel mm : 3.68  
Tolerance mm : +- 0.10

Rated speed rpm : 540  
guide sleeve  
travel mm : 6.00

Tolerance mm : +- 0.10

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm : +- 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm : +- 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 11.60  
Rated speed rpm : 1098  
Tolerance 1/min : +- 8

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : +- 15

rack travel mm : 0.75  
Tolerance mm : +- 0.75  
Rated speed rpm : 1250

---

## LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  7.90

### Testing:

Rated speed rpm : 300  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 435  
Tolerance 1/min :  $\pm$  29

---

### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

---

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 450  
Pressure hPa : 1000  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 450  
Pressure hPa : -  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 450  
  
Pressure hPa : 250  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 380  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.15

---

### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 138.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.50

Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.04.97  
Test oil : ISO 4113  
Combination No. : 0 402 648 927  
Injection pump  
Pump designation : PE8P120A32OLS7840  
EP type number : 0 412 628 850  
Governor  
Governor design. : RQV300...1050PA797  
: -38  
Governor no. : 0 421 814 084  
Cust. part No. : 0220747102

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 A  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

K09

Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1  
Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 12.60  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : 6.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1100

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.60  
Rated speed rpm : 1095  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1165  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 86.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.90

Testing:

Rated speed rpm : 300  
rack travel mm : 6.50  
Tolerance mm : + 0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.60  
Tolerance mm : + 0.05

Rated speed rpm : 800

rack travel mm : 12.60  
Tolerance mm : +- 0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Pressure hPa : 1000  
rack travel mm : 12.60  
Tolerance mm : +- 0.05

Rated speed rpm : 450  
Pressure hPa : -  
rack travel mm : 11.10  
Tolerance mm : +- 0.15

##### MEASUREMENT

Pressure hPa : 250  
rack travel mm : 11.40  
Tolerance mm : +- 0.20

Pressure hPa : 380  
rack travel mm : 12.10  
Tolerance mm : +- 0.15

---

##### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 800  
Del. quantity  
cm3/1000 strokes : 195.0  
Tolerance  
cm3/1000 strokes : +- 2.0  
Check tolerance  
cm3/1000S. : +- 5.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 138.0

Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm3/1000 strokes : 190.0  
Tolerance  
cm3/1000 strokes : +- 10.0  
Check tolerance  
cm3/1000S. : +- 14.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.50  
Tolerance mm : +- 0.10  
Del. quantity  
cm3/1000 strokes : 13.0  
Tolerance  
cm3/1000 strokes : +- 3.0  
Check tolerance  
cm3/1000S. : +- 6.0  
Speed  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.01.97  
Test oil : ISO 4113

Combination No. : 0 402 676 832

Injection pump  
Pump designation : PE6P120A320LS7898  
EP type number : 0 412 626 957

Governor  
Governor design. : RSV350...1000POA648  
Governor no. : 0 421 833 565

Cust. part No. : 0270743202

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441 A  
Power KW : 170.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.75  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 93.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1030  
rack travel mm : 10.70

Rated speed rpm : 1080  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1031  
rack travel mm : 10.70

Rated speed rpm : 1081  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1032  
rack travel mm : 10.70

Rated speed rpm : 1082  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1033  
rack travel mm : 10.70

Rated speed rpm : 1083  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1034  
rack travel mm : 10.70

Rated speed rpm : 1084  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1035  
rack travel mm : 10.70

Rated speed rpm : 1085  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

K14

rack travel mm : 2.00  
Rated speed rpm : 405  
Tolerance 1/min :  $\pm$  30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.15

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure hPa : 1000  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
Pressure hPa : -  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 400

Pressure hPa : 300  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 400  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.15

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 350  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350

K15

Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 15.05.97  
Test oil : ISO 4113

Combination No. : 0 402 676 836

Injection pump  
Pump designation : PE6P120A320LS7898  
EP type number : 0 412 626 957

Governor  
Governor design. : RSV350...105QPOA668  
Governor no. : 0 421 833 587

Cust. part No. : 0280740302

## Customer-spec. information

Customer : MB-NFZ  
Motor : CM41 A euromot  
Power kW : 190.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 130  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 1030



Rack travel in mm : 13.30  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

#### CONTROL LEVER

control lever  
position degree : 93.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070  
rack travel mm : 12.30

Rated speed rpm : 1152  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1071  
rack travel mm : 12.30

Rated speed rpm : 1153  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1072  
rack travel mm : 12.30

Rated speed rpm : 1154  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1073  
rack travel mm : 12.30

Rated speed rpm : 1155  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1074  
rack travel mm : 12.30

Rated speed rpm : 1156  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1075  
rack travel mm : 12.30

Rated speed rpm : 1157  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 71.0

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 415

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 400  
Pressure nPa : 1000  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 400  
Pressure hPa : -  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 400  
  
Pressure hPa : 500  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.15  
  
Pressure hPa : 350  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : 500  
Rated speed rpm : 400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.40  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.05.97  
Test oil : ISO 4113

Combination No. : 0 402 746 653

Injection pump  
Pump designation : PES6P120A720LS7209  
: -3

EP type number : 0 412 726 941

Governor  
Governor design. : RQV300...1100PA1006  
: -2K  
Governor no. : 0 421 815 467

Cust. part No. : 51.11103-7424

Customer-spec. information  
Customer : MAN  
Motor : D 2866 LE 402  
Power KW : 368.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 175  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5

K20

Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.00  
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-  
: 3

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 315.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 300

Rack travel in mm : 5.20

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1157  
guide sleeve  
travel mm : 10.23  
Tolerance mm : + 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm : + 0.20

Rated speed rpm : 792  
guide sleeve  
travel mm : 6.51  
Tolerance mm : + 0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 3.81  
Tolerance mm : + 0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 13.50

Tolerance mm : + 0.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 2000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 315.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 13.80

Rated speed rpm : 1145

Tolerance 1/min : + 8

rack travel mm : 4.00

Rated speed rpm : 1256

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1400

---

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.70

##### Testing:

Rated speed rpm : 300

rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 326

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 2000  
rack travel mm : 14.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 1100  
Pressure hPa : 250  
rack travel mm : 9.65  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1000  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.15

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  220

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 285.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 2000  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 305.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.05.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 746 910  
  
Injection pump  
Pump designation : PES6P120A720LS7209  
: -1  
EP type number : 0 412 726 849  
  
Governor  
Governor design. : RQV300...1100PA1006K  
Governor no. : 0 421 815 283

Cust. part No. : 51.11103-7071

Customer-spec. information  
Customer : MAN  
Motor : D2866LXE  
Power KW : 324.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 025  
  
Inlet press. bar : 1.5  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 089

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 13.00  
Tolerance mm : ± 0.50  
  
Firing order : 6- 2- 4- 1- 5-  
: 3  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 13.05  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 253.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
  
Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 23.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance

cm<sup>3</sup>/1000s. : ± 6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000s. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1156

guide sleeve

travel mm : 10.06

Tolerance mm : ± 0.15

Rated speed rpm : 300

guide sleeve

travel mm : 1.77

Tolerance mm : ± 0.20

Rated speed rpm : 833

guide sleeve

travel mm : 6.98

Tolerance mm : ± 0.25

Rated speed rpm : 500

guide sleeve

travel mm : 3.78

Tolerance mm : ± 0.25

Rated speed rpm : 1420

guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : 1200

Del. quantity

cm<sup>3</sup>/1000 strokes : 253.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000s. : ± 4.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000s. : 9.0

##### CONTROL LEVER

control lever

position degree : 118.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 1145

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1250

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1400

##### LOW IDLE

control lever

position degree : 72.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300

rack travel mm : 5.00

Tolerance mm : ± 0.10

##### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 900  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1200  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 1100  
  
Pressure hPa : 560  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 100  
rack travel mm : 9.45  
Tolerance mm :  $\pm$  0.05

---

##### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 167.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.05.97  
Test oil : ISO 4113  
Combination No. : 9 400 087 437  
Injection pump  
Pump designation : PE6P110A32ORS3108Y  
EP type number : 0 411 816 729  
Governor  
Governor design. : RQV250...1100PA589  
: -3  
Governor no. : 9 420 080 288  
Cust. part No. :

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : THD 100 EC  
Power KW : 180.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : +- 2.0  
Overflow valve : 1 417 413 025  
Inlet press. bar : 1.5  
Test nozzle holde  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : +- 1.5  
Test Lines : 1 680 750 015  
Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : +- 1.0  
Prestroke mm : 3.05  
Tolerance mm : +- 0.05  
Check  
tolerance mm : +- 0.10  
Rack travel in mm : 10.50  
Tolerance mm : +- 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : +- 0.50  
Check  
tolerance °NW : +- 0.75

## BASIC SETTING

Rated speed rpm : 700  
Rack travel in mm : 11.15  
Tolerance mm : +- 0.05  
Del. quantity  
cm3/1000 strokes : 139.0  
Tolerance  
cm3/1000 strokes : +- 1.0  
Check tolerance  
cm3/1000S. : +- 4.0  
Speed

Tolerance  
cm3/1000 strokes : 4.0

---

Check tolerance  
cm3/1000S. : 7.5

---

Rated speed rpm : 250

Rack travel in mm : 5.30  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 32.0  
Tolerance  
cm3/1000 strokes : + 2.5  
Check tolerance  
cm3/1000S. : + 3.0

Spread  
Tolerance  
cm3/1000 strokes : 4.5  
Check tolerance  
cm3/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.50  
Tolerance mm : + 0.20

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.20  
Tolerance mm : + 0.10

Rated speed rpm : 500  
guide sleeve  
travel mm : 4.50  
Tolerance mm : + 0.40

Rated speed rpm : 700  
guide sleeve  
travel mm : 6.50  
Tolerance mm : + 0.20

Rated speed rpm : 1100  
guide sleeve  
travel mm : 7.25  
Tolerance mm : + 0.25

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1175

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 900

Del. quantity  
cm3/1000 strokes : 139.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

Spread  
Tolerance  
cm3/1000 strokes : 4.0  
Check tolerance  
cm3/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree : + 4.0

control lever  
position degree : 119.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 10.10  
Rated speed rpm : 1165  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1240  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree : + 4.0

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100  
CRT mm min. :  $>$  6.70

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 338

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 430  
rack travel mm : 1.20  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 280  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700

L02

Del. quantity  
cm<sup>3</sup>/1000 strokes : 107.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 7.5

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.05.97  
Test oil : ISO 4113

Combination No. : 9 400 087 497

Injection pump  
Pump designation : PES6P120A120RS3344  
EP type number : 9 400 087 090

Governor  
Governor design. : RQV350...1100PA1207  
Governor no. : 9 420 080 379

Cust. part No. : 3355976

Customer-spec. information  
Customer : CUMMINS  
Motor : 6 CTAA - 290  
Power KW : 214.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 3.0

Test nozzle holde  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 4.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 15.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.23

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 15.55  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 6.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 44.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 650  
guide sleeve

travel mm : 5.55  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1150  
guide sleeve

travel mm : 8.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350  
guide sleeve

travel mm : 1.55  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 500  
guide sleeve

travel mm : 4.05

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1400

guide sleeve  
travel mm : 10.55

Tolerance mm :  $\pm$  0.25

#### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1150

Rack travel in mm : 16.50

Tolerance mm :  $\pm$  1.30

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 1300

Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever

position degree : 63.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 118.0

tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 14.50

Rated speed rpm : 1150

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1360

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1500



---

## LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 14.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  9.50

### Testing:

Rated speed rpm : 325  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 15.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 15.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 720  
rack travel mm : 15.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 960  
rack travel mm : 15.55  
Tolerance mm :  $\pm$  0.05

---

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1300  
rack travel mm : 15.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

L05

Pressure hPa : -

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 2.65  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 400  
rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.10

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1300  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 217.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 6.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 44.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.05.97  
Test oil : ISO 4113

Combination No. : 0 400 462 049

Injection pump  
Pump designation : PES2A65D410/3RS1273  
EP type number : 0 410 462 995

Governor  
Governor design. : RSV400...1225A1C1091  
: DL  
Governor no. : 0 420 232 386

Cust. part No. :

Customer-spec. information  
Customer : HOLDER

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

L07

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Firing order : 1- 2

Phasing : 0-90

## BASIC SETTING

Rated speed rpm : 1225

Rack travel in mm : 10.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.5

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

Rated speed rpm : 400

Rack travel in mm : 7.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800  
  
Rack travel in mm : 0.65  
Tolerance mm : +- 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1225  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 1.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

CONTROL LEVER

control lever  
position degree : 66.0  
tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 9.80  
Rated speed rpm : 1270  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1310  
Tolerance 1/min : +- 15

rack travel mm : 1.00

L08

Tolerance mm : +- 0.70  
Rated speed rpm : 1450

LOW IDLE

control lever  
position degree : 26.0  
tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 7.80  
Tolerance mm : +- 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400  
rack travel mm : 7.30  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 590  
Tolerance 1/min : +- 30

Rated speed rpm : 700

CRT mm max. : < 1.00

TORQUE CONTROL

Rated speed rpm : 1225  
rack travel mm : 10.85  
Tolerance mm : +- 0.05

Rated speed rpm : 1000  
rack travel mm : 11.20  
Tolerance mm : +- 0.10

Rated speed rpm : 500  
rack travel mm : 11.45  
Tolerance mm : +- 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : ± 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 71.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 400  
  
Rack travel in mm : 7.30  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.05.97  
Test oil : ISO 4113  
  
Combination No. : C 400 864 104  
  
Injection pump  
Pump designation : PES4A95D410/3RS2789  
EP type number : 0 410 894 995  
  
Governor  
Governor design. : RSV325...1250A5C877L  
Governor no. : 0 420 232 632

Cust. part No. : 0423 2047 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : BF4L 913 C  
Power KW : 78.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250  
  
Rack travel in mm : 12.70  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
  
Spreed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 11.5

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spread  
Tolerance

cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 92.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spread  
Tolerance

cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 104.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.70  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1555

rack travel mm : 4.00  
Rated speed rpm : 1405  
Tolerance 1/min :  $\pm$  15

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 580  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.05.97  
Test oil : ISO 4113

Combination No. : 0 400 865 028

Injection pump  
Pump designation : PES5A95D410/3RS2906  
EP type number : 0 410 895 971

Governor  
Governor design. : RSV325...1250A5C858L  
Governor no. : 0 420 232 621

Cust. part No. : 0423 1598 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F5L912/913\_NEU  
Power KW : 67.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.75

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 109.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 9.80  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1400  
Tolerance 1/min :  $\pm$  15

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 610  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.05.97  
Test oil : ISO 4113

Combination No. : 0 400 866 222

Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884

Governor  
Governor design. : RSV325...1250A5C858L  
Governor no. : 0 420 232 621

Cust. part No. : 0423 1601 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F6L912/913\_NEU  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.25

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1400  
Tolerance 1/min :  $\pm$  15

### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 130.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.05.97  
Test oil : ISO 4113

Combination No. : 0 400 866 227

Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884

Governor  
Governor design. : RSV325...1250A5C870L  
Governor no. : 0 420 232 625

Cust. part No. : 0423 1964 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : BF6L 913  
Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 9.60  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

## Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.25

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

### CONTROL LEVER

control lever  
position degree : 103.0  
tolerance degree : ± 4.0

### RATED SPEED

rack travel mm : 12.00  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1565

rack travel mm : 4.00  
Rated speed rpm : 1415  
Tolerance 1/min : ± 15

### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : ± 4.0

### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 9.10  
Tolerance mm : ± 0.10

### Testing:

Rated speed rpm : 325  
rack travel mm : 9.60  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 610  
Tolerance 1/min : ± 30

### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 13.00



Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 250  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 9.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 23.05.97  
Test oil : ISO 4113  
  
Combination No. : 0 400 866 229  
  
Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884  
  
Governor  
Governor design. : RSV325...1250A5C873L  
Governor no. : 0 420 232 628

Cust. part No. : 0423 2077 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : BF6L 913  
Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Spreed

### Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

### Check tolerance

cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 9.60

Tolerance mm :  $\pm$  0.10

### Del. quantity

cm<sup>3</sup>/1000 strokes : 14.5

### Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

### Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  4.5

### Spreed

### Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

### Check tolerance

cm<sup>3</sup>/1000S. : 9.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

#### control lever

position degree : FREE

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm :  $\pm$  0.20

#### governor spring

#### pre-tension

click setting x : 3.25

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

#### Aneroid pressure

hPa : 1000

### Del. quantity

cm<sup>3</sup>/1000 strokes : 82.5

### Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

### Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  3.0

### Spreed

### Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

### Check tolerance

cm<sup>3</sup>/1000S. : 8.0

### CONTROL LEVER

#### control lever

position degree : 103.0

tolerance degree :  $\pm$  4.0

### RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 1295

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1355

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1565

rack travel mm : 4.00

Rated speed rpm : 1415

Tolerance 1/min :  $\pm$  15

### LOW IDLE

#### control lever

position degree : 70.0

tolerance degree :  $\pm$  4.0

### Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 9.10

Tolerance mm :  $\pm$  0.10

### Testing:

Rated speed rpm : 325

rack travel mm : 9.60

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 610

Tolerance 1/min :  $\pm$  30

### TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 13.00

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 9.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.05.97  
Test oil : ISO 4113  
Combination No. : 0 400 866 232  
Injection pump  
Pump designation : PES6A95D410/3RS2909  
EP type number : 0 410 896 883  
Governor  
Governor design. : RSV325...1250A5C876L  
Governor no. : 0 420 232 631

Cust. part No. : 0423 2063 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : BF6L 913C  
Power KW : 141.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 11.80  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50

governor spring  
pre-tension  
click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure

hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 106.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1515

rack travel mm : 4.00  
Rated speed rpm : 1365  
Tolerance 1/min :  $\pm$  15

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 4.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 325  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 455  
Tolerance 1/min :  $\pm$  30

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.80

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 750  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1450  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 470  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 320  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 104.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 67.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.05.97  
Test oil : ISO 4113

Combination No. : 0 400 866 235

Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884

Governor  
Governor design. : RSV325...1250A5C917L  
Governor no. : 0 420 232 639

Cust. part No. : 0423 2334 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F6L913  
Power kW : 89.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000s. : ± 3.0

Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1550

rack travel mm : 4.00  
Rated speed rpm : 1400  
Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 595  
Tolerance 1/min : ± 30

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

End of test specification sheet

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 70.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 17.00  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.97  
Test oil : ISO 4113  
Combination No. : 0 400 876 256  
Injection pump  
Pump designation : PES6A90D410RS2293  
EP type number : 0 410 896 031  
Governor  
Governor design. : RSV350...1300AOC1101  
: L  
Governor no. : 0 420 232 410  
Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM352A  
Power KW : 110.3

## TEST BENCH REQUIREMENTS

Inlet line : 1.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 419 992 198  
Inlet press. bar : 1.5  
Test nozzle holder  
assembly : 0 681 343 009  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

MO3

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1300  
Rack travel in mm : 10.65  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 71.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.5  
Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 71.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1500

rack travel mm : 4.00  
Rated speed rpm : 1430  
Tolerance 1/min :  $\pm$  15

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

Testing:

rack travel mm : 2.00  
Rated speed rpm : 480  
Tolerance 1/min :  $\pm$  30

TORQUE CONTROL

Rated speed rpm : 1300  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 63.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.10  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

#### LOW IDLE

Rated speed rpm : 350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 4.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.05.97  
Test oil : ISO 4113

Combination No. : 9 400 030 669

Injection pump  
Pump designation : PES6A100D320/3RS3503  
EP type number : 9 410 037 213

Governor  
Governor design. : RQV400...1250AB1301R  
Governor no. : 9 420 030 158

Cust. part No. : TATA-CUMMINS

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTAA  
Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2;

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 207.0  
Tolerance bar : ± 3.0

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.10  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.75

Tolerance mm :  $\pm$  0.05

---

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1347  
guide sleeve  
travel mm : 8.48  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 880  
guide sleeve  
travel mm : 4.97  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 499  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 549  
guide sleeve  
travel mm : 3.30  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 560  
guide sleeve  
travel mm : 3.37  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1620  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1250  
  
Rack travel in mm : 16.00  
Tolerance mm :  $\pm$  1.30

CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.75  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1425  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1485

---

LOW IDLE

control lever  
position degree : 15.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100  
  
CRT mm min. :  $>$  9.00

Testing:

Rated speed rpm : 400  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 625  
Tolerance 1/min :  $\pm$  30

---

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1250  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 550  
Pressure hPa : 600  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 550  
Pressure hPa : 400  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 340  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

---

Start interlock

Rated speed rpm : > 170  
Rated speed rpm : > 300

Check  
speed 1/min : < 190  
Check  
speed 1/min : < 340

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.75

---

LOW IDLE

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.05.97  
Test oil : ISO 4113

Combination No. : 9 400 030 707

Injection pump  
Pump designation : PES6A100D320/3RS3511  
EP type number : 9 410 037 253

Governor  
Governor design. : RQV400...1250AB1320R  
Governor no. : F 002 A30 000

Cust. part No. : TATA-CUMMINS

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT - 145 BHP

## TEST BENCH REQUIREMENTS

Inlet line : 3.2;

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.10  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 6.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.20

Tolerance mm :  $\pm$  0.05

---

Rack travel in mm : 8.45  
Tolerance mm :  $\pm$  0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1347  
guide sleeve  
travel mm : 8.48  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 880  
guide sleeve  
travel mm : 4.97  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 499  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 549  
guide sleeve  
travel mm : 3.30  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 560  
guide sleeve  
travel mm : 3.37  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1620  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1250

Rack travel in mm : 16.00  
Tolerance mm :  $\pm$  1.30

---

CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.20  
Rated speed rpm : 1325  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1455  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1525

---

LOW IDLE

control lever  
position degree : 20.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  9.00

Testing:

Rated speed rpm : 400  
rack travel mm : 8.45  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 760  
Tolerance 1/min :  $\pm$  30

---

TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1250

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

## SETTING

Rated speed rpm : 550  
Pressure hPa : 750  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 11.25  
Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 445  
rack travel mm : 11.95  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 390  
rack travel mm : 11.60  
Tolerance mm :  $\pm$  0.20

---

## Start interlock

Rated speed rpm : > 170  
Rated speed rpm : > 300

Check  
speed 1/min : < 190  
Check  
speed 1/min : < 340

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 15.50  
Tolerance mm :  $\pm$  0.50

---

## LOW IDLE

Rack travel in mm : 8.45  
Tolerance mm :  $\pm$  0.10

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.05.97  
Test oil : ISO 4113  
Combination No. : 9 400 030 708  
Injection pump  
Pump designation : PES6A100D320/3RS3506  
EP type number : 9 410 037 236  
Governor  
Governor design. : RQV400...1250AB1328R  
Governor no. : F 002 A30 003

Cust. part No. : TATA-CUMMINS

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT - 125 ps

## TEST BENCH REQUIREMENTS

Inlet line : 1.1;  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 9 451 037 430  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Test nozzle holder  
assembly : 1 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
°NW after s.o.d. : 5.75  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250  
Rack travel in mm : 10.30  
Tolerance mm : ± 0.05

Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1347  
guide sleeve  
travel mm : 8.48  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 400  
guide sleeve  
travel mm : 1.71  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 880  
guide sleeve  
travel mm : 4.97  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 499  
guide sleeve  
travel mm : 2.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 549  
guide sleeve  
travel mm : 3.30  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 560  
guide sleeve  
travel mm : 3.37  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1620  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1250  
Rack travel in mm : 16.00  
Tolerance mm :  $\pm$  1.30

##### CONTROL LEVER

control lever  
position degree : 61.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 9.30  
Rated speed rpm : 1335  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1430  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1490

##### LOW IDLE

control lever  
position degree : 15.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  9.00

##### Testing:

Rated speed rpm : 400  
rack travel mm : 6.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 630  
Tolerance 1/min :  $\pm$  30

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.15

---

Start interlock

Rated speed rpm : > 170  
Rated speed rpm : > 300

Check  
speed 1/min : < 190  
Check  
speed 1/min : < 340

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.50

---

LOW IDLE

Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.10

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.97  
Test oil : ISO 4113

Combination No. : 9 400 030 751

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1050A0C866R  
Governor no. : F 002 A20 202

Cust. part No. : 393 0158

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT  
Power KW : 94.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.00  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 86.1
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

Rated speed rpm	: 475
Rack travel in mm	: 6.60
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 18.6
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
-----------------	--------

Aneroid pressure hPa	: 800
Del. quantity cm <sup>3</sup> /1000 strokes	: 86.1
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

#### CONTROL LEVER

control lever position degree	: 102.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 11.00
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1280

rack travel mm	: 4.00
Rated speed rpm	: 1200
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever position degree	: 84.0
tolerance degree	: ± 4.0

#### Control lever difference

Grad	: 18.0
tolerance degree	: ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 6.10
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------



CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 475  
rack travel mm : 6.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 610  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 650  
Pressure hPa : 800

Rated speed rpm : 650  
Pressure hPa : --  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 650

Pressure hPa : 550  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 475  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 97.0

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Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : --  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

#### LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 6.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.6  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.05.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 048

Injection pump  
Pump designation : PES6A95D320/3RS2916  
EP type number : F 002 A10 010

Governor  
Governor design. : RSV425...950A0C927R  
Governor no. : F 002 A20 235

Cust. part No. : 3283916

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BTA-160/1900  
Power KW : 119.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.30

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 119.4
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.5
<hr/>	

Rated speed rpm	: 425
<hr/>	
Rack travel in mm	: 6.00
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 23.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
<hr/>	
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension click setting x	: 2.75

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 950
Aneroid pressure hPa	: 850
Del. quantity cm <sup>3</sup> /1000 strokes	: 119.4
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

##### CONTROL LEVER

control lever position degree	: 88.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 12.30
Rated speed rpm	: 1000
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1050
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1200

rack travel mm	: 4.00
Rated speed rpm	: 1050
Tolerance 1/min	: ± 15

##### LOW IDLE

control lever position degree	: 70.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 18.0
tolerance degree	: ± 6.0

##### Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 5.20
Tolerance mm	: ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 500  
Tolerance 1/min :  $\pm$  30

TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.05

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 850  
  
Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 550  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 350  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 80.8  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 425  
  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 20.05.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 052

Injection pump  
Pump designation : PES6A95D320/3RS2916  
EP type number : F 002 A10 010

Governor  
Governor design. : RSV425...1000A0C932R  
Governor no. : F 002 A20 238

Cust. part No. : 328 3918

Customer-sper. information  
Customer : CUMMINS  
Motor : SBTA-147 HP  
Power kW : 106.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.50  
Tolerance : ± 0.10  
Check  
tolerance \*NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.40

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm <sup>3</sup> /1000 strokes	: 109.8
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.5
<hr/>	

Rated speed rpm	: 425
<hr/>	
Rack travel in mm	: 5.50
Tolerance mm	: + 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 17.6
Tolerance cm <sup>3</sup> /1000 strokes	: + 2.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.5
<hr/>	
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR.

GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
<hr/>	
governor spring pre-tension click setting x	: 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure hPa	: 1200
Del. quantity cm <sup>3</sup> /1000 strokes	: 109.8
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 3.0
<hr/>	
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 88.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 11.40
Rated speed rpm	: 1065
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1100
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1250

rack travel mm	: 4.00
Rated speed rpm	: 1100
Tolerance 1/min	: + 15

LOW IDLE

control lever position degree	: 67.0
tolerance degree	: + 4.0

Control lever difference Grad	: 21.0
tolerance degree	: + 6.0

Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 5.00
Tolerance mm	: + 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 425  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 500  
Tolerance 1/min :  $\pm$  30

TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.05

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
  
Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 600  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20  
  
Pressure hPa : 475  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.7  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 425  
  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.6  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.05.97  
Test oil : ISO 4113

Combination No. : 9 400 030 752

Injection pump  
Pump designation : PES4A95D320/3RS2880  
EP type number : 9 410 034 214

Governor  
Governor design. : RSV475...1100A0C867R  
Governor no. : F 002 A20 203

Cust. part No. : 3930151

Customer-spec. information  
Customer : CDC  
Motor : 4BT  
Power KW : 66.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

\*NW after s.o.d. : 6.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.90  
Tolerance mm : ± 0.05



Del. quantity cm <sup>3</sup> /1000 strokes	: 97.0
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Speed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.5
<hr/>	

Rated speed rpm	: 475
<hr/>	
Rack travel in mm	: 6.80
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 18.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
<hr/>	
Speed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension	
click setting x	: 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
-----------------	--------

Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 97.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Speed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

#### CONTROL LEVER

control lever position degree	: 107.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 11.90
Rated speed rpm	: 1165
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1270
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1275
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever position degree	: 86.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 21.0
tolerance degree	: ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 6.30
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

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TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.20

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm3/1000 strokes : 103.5  
Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm3/1000 strokes : 121.0  
Tolerance  
cm3/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm3/1000S. :  $\pm$  15.0

---

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 6.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 18.5

Tolerance  
cm3/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm3/1000 strokes : 6.0  
Check tolerance  
cm3/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.05.97  
Test oil : ISO 4113

Combination No. : F 002 A0Z 010

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV475...1050A0C887R  
Governor no. : F 002 A20 209

Cust. part No. : 3930160

Customer-spec. information  
Customer : CDC  
Motor : 6BT  
Power KW : 107.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

M27

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 7.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.50  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 103.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

Rated speed rpm	: 475
Rack travel in mm	: 5.80
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 19.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 2.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 4.5
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 6.0
Check tolerance cm <sup>3</sup> /1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 3.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
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Aneroid pressure hPa	: 1000
Del. quantity cm <sup>3</sup> /1000 strokes	: 103.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

#### CONTROL LEVER

control lever position degree	: 103.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 11.50
Rated speed rpm	: 1120
Tolerance 1/min	: ± 5

rack travel mm	: 6.85
Rated speed rpm	: 1175
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 6.85
Rated speed rpm	: 1175
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever position degree	: 83.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 20.0
tolerance degree	: ± 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.30
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475  
rack travel mm : 5.80  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.20

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 560  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

N01

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

LOW IDLE

Rated speed rpm : 475  
Rack travel in mm : 5.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.05.97  
Test oil : ISO 4113

Combination No. : 0 400 074 872

Injection pump  
Pump designation : PES4M55C320RS192  
FP type number : 0 410 054 932

Governor  
Governor design. : RSF360/1900M90  
Governor no. : 0 420 021 295

Cust. part No. :

## Customer-spec. information

Customer : MB-FKW  
Motor : OM601 D23 LA  
Power kW : 72.0

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holder  
assembly : 1 688 901 111

Opening pressure  
bar : 148.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

N02

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 21.00  
Tolerance mm : ± 1.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 17.00  
Tolerance : ± 0.20  
Check  
tolerance \*NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.7

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.7

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

Rated speed rpm : 360

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 6.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 1.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### IDLE STAGE

Rack travel in mm : 6.00  
Tolerance mm : ± 0.10

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Ref. pressure  
ALDA / ADA hPa : 1850

Del. quantity  
cm<sup>3</sup>/1000 strokes : 59.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.7

Check tolerance  
cm<sup>3</sup>/1000S. : ± 1.7

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

##### RATED SPEED

Tolerance mm : ± 0.20

Rated speed rpm : 2600

rack travel mm : 0.50

Tolerance mm : ± 0.50

##### SET IDLE CONTROL LEVER POSITION

Rated speed rpm : 900

N03

CRT mm max. : 1.95

##### LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 360

rack travel mm : 6.00

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 500

rack travel mm : 4.00

Tolerance mm : ± 0.10

##### Load pick-up

Rated speed rpm : 900

CRT mm max. : 1.95

rack travel mm : 6.00

Rated speed rpm : 360

##### TORQUE CONTROL

Rated speed rpm : 900

rack travel mm : 13.80

Tolerance mm : ± 0.05

Rated speed rpm : 1500

rack travel mm : 13.20

Tolerance mm : ± 0.10

Rated speed rpm : 1900

rack travel mm : 12.50

Tolerance mm : ± 0.15

Rated speed rpm : 900

rack travel mm : 11.15

Tolerance mm : ± 0.10

##### ADJUSTMENT TEST ADA/ALDA

##### SETTING

Rated speed rpm : 900

Ref. pressure

ALDA / ADA hPa : 1600

rack travel mm : -0.25

Tolerance mm : ± 0.20

##### MEASUREMENT

Rated speed rpm : 900

Ref. pressure  
ALDA / ADA hPa : 1100  
rack travel mm : -2.65  
Tolerance mm :  $\pm$  0.10

Ref. pressure  
ALDA / ADA hPa : 750  
rack travel mm : -4.30  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
ALDA / ADA hPa : 1850  
Rated speed rpm : 1900  
Spreed  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 55.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.2  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  2.2  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.7  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

Ref. pressure  
ALDA / ADA hPa : 1100  
Rated speed rpm : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 43.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  0.7  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  1.7  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

---

#### HIGH IDLE

Ref. pressure  
ALDA / ADA hPa : 1850  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 31.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.2  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.2  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : > 20.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 54.3  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.5

---

#### LOW IDLE

Rated speed rpm : 360  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.10



Del. quantity  
cm<sup>3</sup>/1000 strokes : 7.8  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  2.3  
Speed  
Check tolerance  
cm<sup>3</sup>/1000s. : 1.5

---

control lever  
position degree : > 42.00

control lever  
position degree : < 39.50

---

#### SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR)

Rated speed rpm : 360

Current A : 1.80

Rated speed rpm : 2600

Rack travel in mm : 0.50

Tolerance mm :  $\pm$  0.50

Current short-  
duration A : 3.00

#### Starting test

Rated speed rpm : 100

Current A : 1.80

---

#### TESTING PNEUMATIC SHUTOFF DEVICE

Rated speed rpm : 360

Vacuum hPa : -450.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.05.97  
Test oil : ISO 4113

Combination No. : 0 402 076 814

Injection pump  
Pump designation : PES6P120B320RS3382  
EP type number : 0 412 026 803

Governor  
Governor design. : RSV425...1100POA669  
Governor no. : 0 421 833 572

Cust. part No. : 836354708

## Customer-spec. information

Customer : SISU  
Motor : 645 DSIE  
Power KW : 200.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.20  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

#### Speed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 425

Rack travel in mm : 4.80  
Tolerance mm : +- 0.10

Del. quantity  
cm3/1000 strokes : 16.0

Tolerance  
cm3/1000 strokes : +- 2.5

Check tolerance  
cm3/1000S. : +- 5.0

#### Speed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : +- 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm3/1000 strokes : 206.0

Tolerance  
cm3/1000 strokes : +- 1.0

Check tolerance  
cm3/1000S. : +- 4.0

N07

Speed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 96.0  
tolerance degree : +- 4.0

#### RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 1145  
Tolerance 1/min : +- 5

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min : +- 15

rack travel mm : 0.85  
Tolerance mm : +- 0.55  
Rated speed rpm : 1330

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : +- 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 425  
rack travel mm : 4.30  
Tolerance mm : +- 0.10

#### Testing:

Rated speed rpm : 425  
rack travel mm : 4.80  
Tolerance mm : +- 0.10

rack travel mm : 2.00  
Rated speed rpm : 490  
Tolerance 1/min : +- 30

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 12.20  
Tolerance mm : +- 0.05

Rated speed rpm : 1100

rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10  
  
Rated speed rpm : 825  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.10  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 940  
rack travel mm : 2.50  
Tolerance mm :  $\pm$  0.10  
  
Pressure hPa : 470  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 183.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

N08

Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 425  
  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.95  
Test oil : ISO 4113

Combination No. : 0 400 866 202

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...1000A0C2190  
: -74R  
Governor no. : 0 420 233 313

Cust. part No. : 3921142

Customer-spec. information  
Customer : CDC  
Motor : 6 CT 8.3  
Power KW : 151.4

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

\*NW after s.o.d. : 10.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rack travel in mm : 5.70  
Tolerance mm : ± 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

N10

#### CONTROL LEVER

control lever  
position degree : 90.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 11.10  
Rated speed rpm : 1055  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1175

rack travel mm : 4.00  
Rated speed rpm : 1120  
Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree : ± 4.0

Control lever difference  
Grad : 15.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.20  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 400  
rack travel mm : 5.70  
Tolerance mm : ± 0.10

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.15

Tolerance mm :  $\pm$  0.05

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

LOW IDLE

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.95  
Test oil : ISO 4113

Combination No. : 0 400 866 209

Injection pump  
Pump designation : PES6A100D320/3RS2691  
EP type number : 9 410 230 025

Governor  
Governor design. : RSV400...1050A0C2190  
                  : -81R  
Governor no. : 0 420 233 320

Cust. part No. : 3921089

## Customer-spec. information

Customer : CDC  
Motor : 6 C 8.3  
Power KW : 89.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
                  : 4

Phasing : 0-60-120-180-240  
          : -300

## Start of delivery blocking

\*NW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 9.65  
Tolerance mm : ± 0.05



Del. quantity cm <sup>3</sup> /1000 strokes	: 80.5
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Speed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.5
<hr/>	

Rack travel in mm	: 5.70
Tolerance mm	: ± 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 80.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Speed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

##### CONTROL LEVER

control lever position degree	: 95.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 8.60
Rated speed rpm	: 1100
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1140
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1200

rack travel mm	: 4.00
Rated speed rpm	: 1140
Tolerance 1/min	: ± 15

##### LOW IDLE

control lever position degree	: 77.0
tolerance degree	: ± 4.0

Control lever difference	
Grad	: 18.0
tolerance degree	: ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 400
rack travel mm	: 5.20
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
-------------	-----------

##### Testing:

Rated speed rpm	: 400
rack travel mm	: 5.70
Tolerance mm	: ± 0.10

##### TORQUE CONTROL

Rated speed rpm	: 1050
rack travel mm	: 9.65
Tolerance mm	: ± 0.05

Rated speed rpm	: 750
rack travel mm	: 10.50

Tolerance mm : +- 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 88.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : +- 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 155.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 15.0

---

#### LOW IDLE

Rack travel in mm : 5.70  
Tolerance mm : +- 0.10

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.05.95  
Test oil : ISO 4113

Combination No. : 0 400 866 213

Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -4  
EP type number : 9 410 230 030

Governor  
Governor design. : RSV450...1100A0C2190  
: -83R  
Governor no. : 0 420 233 322

Cust. part No. : 3921093

Customer-spec. information  
Customer : CDC  
Motor : 6CT830  
Power kW : 150.6

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Start of delivery blocking

\*N<sub>W</sub> after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance \*N<sub>W</sub> : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.15  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rack travel in mm : 5.40  
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 5.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree : ± 6.0

#### RATED SPEED

rack travel mm : 11.10  
Rated speed rpm : 1160  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1255  
Tolerance 1/min : ± 5

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

rack travel mm : 4.00  
Rated speed rpm : 1260  
Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 85.0  
tolerance degree : ± 6.0

Control lever difference  
Grad : 23.0  
tolerance degree : ± 6.0

#### Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 4.90  
Tolerance mm : ± 0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 450  
rack travel mm : 5.40  
Tolerance mm : ± 0.10

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.15

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 750  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

---

Rated speed rpm : 100  
rack travel mm :  $\pm$  0.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

---

Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 13.06.95  
Test oil : ISO 4113

Combination No. : 0 400 866 214

Injection pump  
Pump designation : PES6A100D320/3RS2691  
: -4  
EP type number : 9 410 230 030

Governor  
Governor design. : RSV450...1100AOC2190  
: -84R  
Governor no. : 0 420 233 323

Cust. part No. : 3921095

Customer-spec. information  
Customer : CDC  
Motor : 6CT830  
Power KW : 134.2

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

\*NW after s.o.d. : 11.00  
Tolerance : ± 0.50  
Check  
tolerance \*NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.25  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 104.5
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
<hr/>	
Check tolerance cm <sup>3</sup> /1000S.	: 6.5
<hr/>	
Rack travel in mm	: 5.80
Tolerance mm	: ± 0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure hPa	: -
Del. quantity cm <sup>3</sup> /1000 strokes	: 104.5
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000S.	: ± 3.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 4.0
Check tolerance cm <sup>3</sup> /1000S.	: 6.5

##### CONTROL LEVER

control lever position degree	: 103.0
tolerance degree	: ± 4.0

##### RATED SPEED

rack travel mm	: 10.20
Rated speed rpm	: 1145
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1225
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.00
Rated speed rpm	: 1230
Tolerance 1/min	: ± 15

##### LOW IDLE

control lever position degree	: 85.0
tolerance degree	: ± 4.0

##### Control Lever difference

Grad	: 18.0
tolerance degree	: ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm	: 450
rack travel mm	: 5.30
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min.	: > 19.00
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##### Testing:

Rated speed rpm	: 450
rack travel mm	: 5.80
Tolerance mm	: ± 0.10

##### TORQUE CONTROL

Rated speed rpm	: 1100
rack travel mm	: 11.25
Tolerance mm	: ± 0.05

Rated speed rpm	: 750
rack travel mm	: 12.10

Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -

Rated speed rpm : 750

Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.50

Tolerance mm :  $\pm$  0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rack travel in mm : 5.80

Tolerance mm :  $\pm$  0.10

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.06.97  
Test oil : ISO 4113  
Combination No. : 0 402 736 852  
Injection pump  
Pump designation : PES6P120A120RS7332  
EP type number : 0 412 726 909

Governor  
Governor design. : RQV350...900PA964  
: -25K  
Governor no. : 0 421 815 418

Cust. part No. : 3927923

Customer-spec. information  
Customer : CDC  
Motor : 6CTA-A  
Power KW : 205.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 5.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 15.25

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 375

Rack travel in mm : 7.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 239.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  6.0

##### RATED SPEED

rack travel mm : 13.90  
Rated speed rpm : 1075  
Tolerance 1/min :  $\pm$  15

rack travel mm : 4.00  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  6.0

##### Control lever difference

Grad : 49.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. :  $>$  8.10

##### Testing:

Rated speed rpm : 375  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 425

##### TORQUE CONTROL

Rated speed rpm : 900  
rack travel mm : 15.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 14.35  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1000

rack travel mm : 15.00  
Tolerance mm : ± 0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 900  
Pressure hPa : 1200

Rated speed rpm : 1000  
Pressure hPa : -  
rack travel mm : 9.70  
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 900  
Pressure hPa : 825  
rack travel mm : 13.80  
Tolerance mm : ± 0.20

Pressure hPa : 370  
rack travel mm : 11.15  
Tolerance mm : ± 0.05

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 290

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : 1200  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 226.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 99.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.40  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 25.0

---

LOW IDLE

Rated speed rpm : 375  
Rack travel in mm : 7.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 11.02.97  
Test oil : ISO 4113

Combination No. : 0 403 466 152

Injection pump  
Pump designation : PES6MW100/120RS1238  
EP type number : 0 413 406 237

Governor  
Governor design. : RSV500...1100MWOA368  
Governor no. : 0 420 085 251

Cust. part No. : 3926878

Customer-spec. information  
Customer : CDC  
Motor : 6 CT  
Power KW : 143.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

\*NW after s.o.d. : 8.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference  
and maximum rack  
travel : 15.00  
Difference °CS : 2.00

---

#### BASIC SETTING

Rated speed rpm : 1100

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Rack travel in mm : 11.00  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

Rated speed rpm : 500

---

Rack travel in mm : 5.15  
Tolerance mm :  $\pm$  0.10

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

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#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

---

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

---

governor spring  
pre-tension  
click setting x : 3.25

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 132.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

---

#### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

---

#### RATED SPEED

rack travel mm : 10.00  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

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rack travel mm : 6.00  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  5

---

rack travel mm : 1.00  
Rated speed rpm : 1400

---

rack travel mm : 6.00  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  15

---

---

#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

---

Control lever difference  
Grad : 14.0  
tolerance degree :  $\pm$  4.0

---

# Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 4.65  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 100

CRT mm min. :  $> 19.00$

## Testing:

Rated speed rpm : 500  
rack travel mm : 5.15  
Tolerance mm :  $\pm 0.10$

## TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.00  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 750  
rack travel mm : 11.70  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 1000  
rack travel mm : 11.45  
Tolerance mm :  $\pm 0.20$

Rated speed rpm : 950  
rack travel mm : 11.50  
Tolerance mm :  $\pm 0.20$

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 900

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.30  
Tolerance mm :  $\pm 0.20$

### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 590  
rack travel mm : 10.80  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 545  
rack travel mm : 10.60

Tolerance mm :  $\pm 0.20$

## FUEL DELIVERY CHARACTERISTICS

### Aneroid pressure

hPa : 900

Rated speed rpm : 950

Del. quantity  
cm<sup>3</sup>/1000 strokes : 141.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 5.0$

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 9.0

### Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 117.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 3.0$

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm 1.00$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 177.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 10.0$

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm 13.0$

## LOW IDLE

Rated speed rpm : 500

Rack travel in mm : 5.15  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

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End of test specification sheet